THE CONDOR

A Magazine of Western Ornithology

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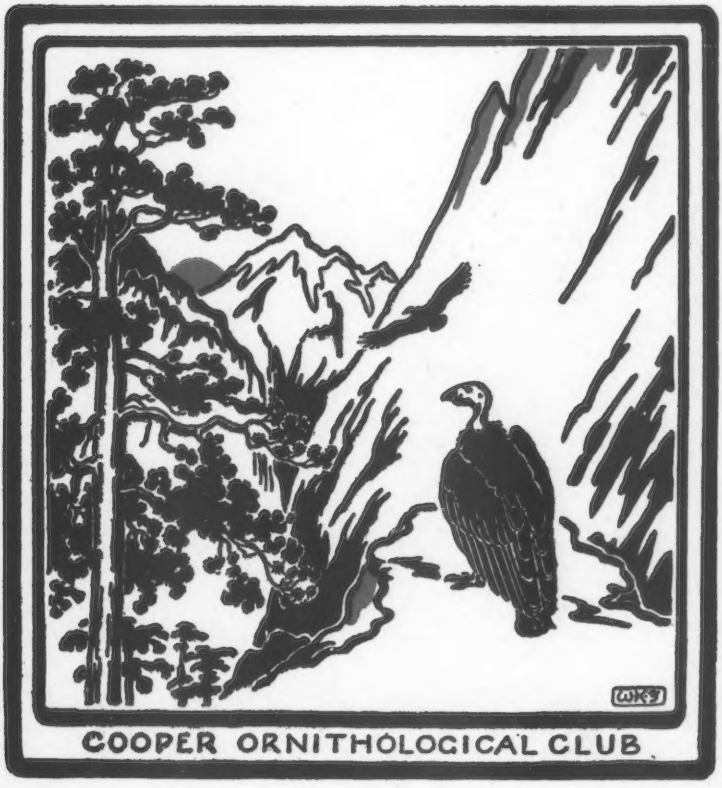

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AN ALBERTA AVIARY

WITH SIX ILLUSTRATIONS

By WILLIAM ROWAN

DR. CASEY WOOD'S article in the January, 1926, issue of The Condor, on the beautiful and ornamental aviaries of the wealthy, has suggested that there might be interest attaching to a brief description of one of an opposite kind, one of a strictly utilitarian nature erected solely for scientific investigation. It is superfluous to add, after the last remark, that economy was a primary consideration! The shape and area were decided by fate, as there was only the one site available, and the old houses (see plan, fig. 49), already there, were not movable. Fortunately, even when the winter days are shortest, the aviaries get several hours of sunshine each day.

The aviary is built of shiplap and two-by-fours and is roofed with "rubberoid". It is built in two sections, a north one and a south one. The north wall of the north section is all wood, without windows (fig. 44), and is 16 feet long and 6 feet high. At each end of it, running south, is a wall 5 feet long, while from the south end of the eastern one a wall runs west for 6 feet (see plan, fig. 49). This leaves 10 feet open along the south side. Into this is built the south wing. This consists merely of a gable-shaped roof 9 feet long and 10 wide, 6 feet high at the sides and 8½ in the center. The whole of its west and south sides are open and netted with ½-inch mesh (fig. 45). The east side is boarded for six feet where it touches the old aviaries, the remaining three being open and netted. The roof of the north section rises from 6 feet behind to 8½ in front (south), and from this edge, along its 10-foot opening into the south wing, a board 2½ feet deep hangs downwards (see section, fig. 49). Along the top of this board runs a two-by-four in such a position that there is just comfortable room for birds to rest on it. (This, incidentally, is a favorite roosting place for the juncos, which show a marked preference for a flat surface at night to a proper perch.) This portion of the roof is liberally supplied with perches which are merely branches of willow, of varying thickness, far more satisfactory than any made in a carpenter's shop —and they cost nothing. Since our prevailing winds are from the northwest the roof here provides complete shelter. In the much advertised blizzard of the 11th of December, 1926, hardly a feather was stirred on the birds perching here. Even at the start of the gale, when it was blowing from the southwest right under the roof of the south wing, protection was complete. A similar device has proved perfectly effective in my older aviaries that have housed birds, through two previous winters, without misadventure.

The completely enclosed portion of the northern section (see plan) may be called the east wing (figs. 46, 47). Both its eastern and southern walls have windows of "cello-glass", a material that cuts out none of the ultra-violet rays that normally penetrate the atmosphere. Cello-glass has the added advantage that it does not require an accessory covering of netting. Although, of course, translucent, it is not transparent and not one bird in fifty will fly against it when turned into the aviary for the first time. A small percentage will fly even into wire netting when first captured, so that netting would be quite superfluous. Cello-glass is, moreover, practically unbreakable. A heavy blow with a hammer will do no more than dent it. The short wall at the opposite end of the north section is also equipped with a cello-glass window (fig. 44).

The east wing has sand on the floor to a depth of about five inches. On the wall hangs an automatic feeder (fig. 47) which accommodates fifteen birds simultaneously. Various modifications of an original home-made feeder of this type have resulted in

Fig. 44. NORTHWESTERN ASPECT OF THE AVIARY.

the present one, which has proved satisfactory under all conditions. In my experience wild birds do not scatter seed after the manner of canaries, and the accumulation of unfavored kinds of seeds in the feeding spaces has to be mechanically avoided. The box contains some ten pounds of seeds and lasts one hundred juncos and sparrows about three days—a shorter time in very cold weather. Beneath the food box is an automatic fountain (out of commission in the winter) at which the birds can drink, but they cannot bathe because vertical bars prevent the use of the wings. This is made of copper, according to my own design, and takes an ordinary 2-liter pyrex flask which can be replaced at any time in case of breakage, although the neck is slightly shortened to improve the proportions of the contrivance. The fountain hangs under the food box rather than above it. Falling husks merely bounce off the flask and do not get into and pollute the water. It is of the utmost importance, on the other hand, that the automatic feeder be kept perfectly dry, always, if it is to function without a hitch. Above the feeder hang a standardized minimum thermometer and an aneroid barometer.

The smaller window (fig. 47) is of ordinary glass (protected with netting), as one cannot see through cello-glass, and is contained in the doorway by which the aviary is entered. To the left of this is a burlap curtain which is worked from the outside and can be drawn across the door before it is opened. The unnecessary loss of light that a fixed curtain would entail is thus obviated. On the extreme left in the picture is another burlap curtain. This is nailed to the wall down its full length on the left and is drawn by a pull from the center of the south wing. Above the rod along which it runs is wire netting extending up to the roof. When it is desired to catch birds (as it may be two or three times a week in connection with the experiments) it is only necessary to walk around the south wing and gently drive the birds into the east wing, draw the curtain, button it down its right side (the buttons are just visible in the photo), slip through the bottom corner before fastening the last buttons, and clap a

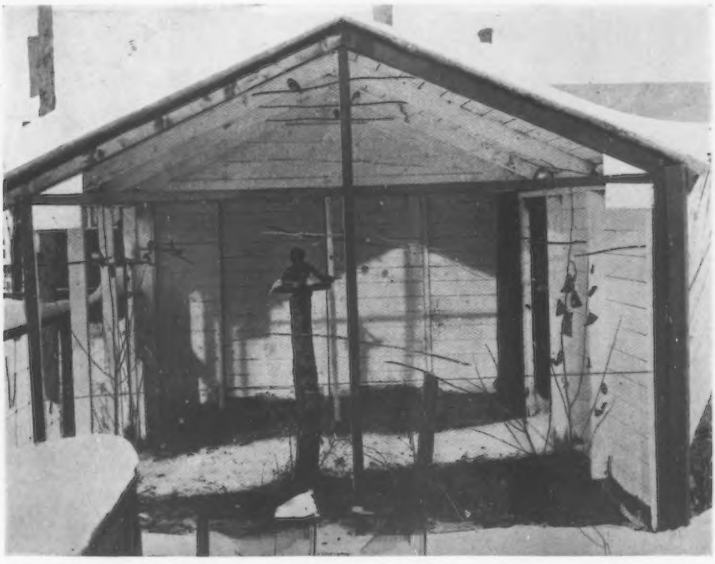

Fig. 45. SOUTHERN ASPECT OF SOUTH WING. CANARIES AND JUNCOS AT FEEDING TRAY. PHOTOGRAPH TAKEN AT 15° BELOW ZERO F.

butterfly net over the desired birds as they attempt to make their way back to the main aviary by way of the netting at the top. Any trap device for the catching of birds would be useless in this particular case on account of the frequent necessity of taking samples and the great amount of time that use of a trap would involve. The method devised is simple, works easily and quickly, and scares the birds surprisingly little.

By having a considerable depth of sand in this wing, the husks from the food box can be swept out of the door at intervals, and thus the whole can be kept constantly fresh and clean, while the sand only has to be replaced every three or four months. The consumption of twenty-five to thirty pounds of seed a week produces an incredible quantity of debris.

Except for this east wing, the rest of the floor is sod. A certain amount of shrubbery grows against the wires, affording additional perches and shelter in the summer

(to be augmented in the spring), as well as improving the general appearance of the aviary. Against the front wire of the south wing is a bathing pool of cement, which provides a non-slippery surface for the bathers. It is three by two feet, running from an inch and a half in depth at one end to nothing at the other (fig. 48). The walls, inside, were made perpendicular, which was a mistake. If these sloped inwards and were rounded on the bottom it would probably be possible, at times of thaw, to pry out the block of ice that will have to stay in, as things are, till March or April. The birds, even the canaries, enjoy a bath on sunny days even if it is freezing slightly, provided that tepid water is available. It should be just warm enough to prevent its freezing for at least half an hour. The water problem is readily solved during the winter by the snow that inevitably drifts into the cages. Even the canaries do not bother about water while there is snow in the aviary. They both drink it and bathe in it.

Fig. 46. GENERAL VIEW OF AVIARY FROM SOUTHEAST. OLD BUILDING IN CENTER, FRONT. TO LEFT, SOUTH WING; TO RIGHT, EAST WING OF NEW AVIARY.

When the aviary was erected, two tree stumps were left on the site. One of these was suitably situated for the ornament which appears in figure 45, the stump affording the inspiration for it. It was, moreover, found desirable to have some fixed spot where the birds could be given dainties at intervals—chopped egg, lettuce, apple peelings, etc. The statuette of one of the writer's children, holding a food tray, was accordingly made to sit on the stump. Three canaries and two juncos are feeding at it in figure 45. The picture was taken at 15° below zero.

The open stretch of three feet in the east wall of the south wing was decided upon with some hesitation on account of draughts which are notoriously detrimental to the welfare of captive birds. That it actually produces a very strong draught is evident from the picture (fig. 45). Not only has the snow drifted right across the aviary here, but the snow on the railing outside has actually been largely blown away. It was assumed, however, that birds would have the sense not to sit in the draught if they did not like it, and it has proved that this conjecture was justified even in the case of

the canaries. It was desirable to leave the space open on account of the violent western gales that blow up with thunder-storms. These may reach almost cyclonic force for a few minutes and do considerable damage by way of lifting roofs, etc. It was obvious that even a comparatively moderate gale would lift such a roof as that of the south wing unless an outlet for the wind were provided. So far from proving injurious, it has been a blessing in disguise, for the frequent east winds of winter have kept a constant supply of snow in the aviary which has saved much shovelling!

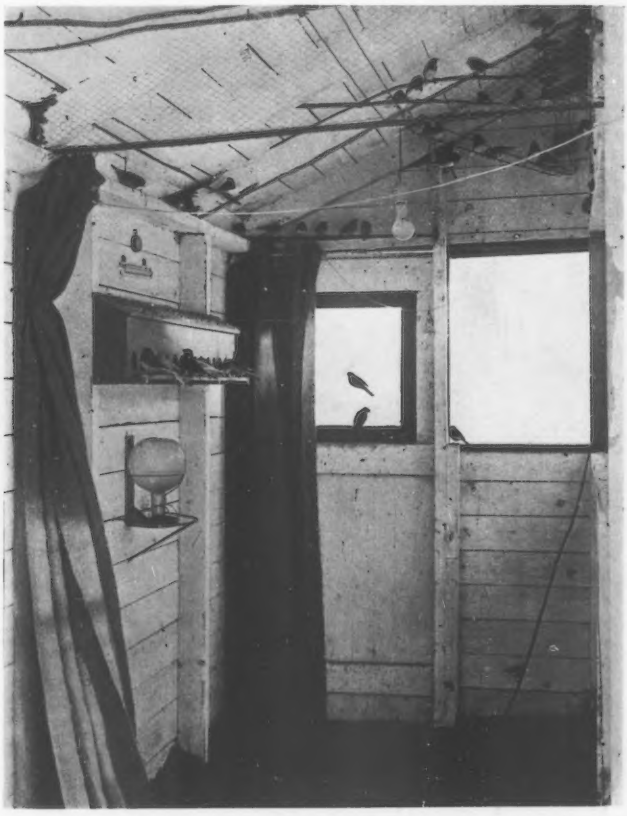

Fig. 47. INSIDE OF THE EAST WING. FOR DETAILS SEE TEXT.

The everlasting problem of mice is very easily solved in this part of the globe. It is only in the fall that these rodents appear to travel and it is then that they are likely to take up quarters (and never in large numbers) in the bird house. One only has to wait for a drop to 30 or 40 degrees below zero and then pour a slow trickle of cold water into the hole. In a few minutes a solid plug of ice that no mouse could possibly hope to tackle has sealed it in for good.

Perhaps a word, in conclusion, about the inhabitants of this aviary, which is probably one of the most "arctic" in existence, and built chiefly for winter use, will be in order. Juncos are the principal inhabitants and are the birds used in the experimental work for which the aviary was erected, out of research funds kindly granted by the Royal Society (London). The aviary contained over a hundred juncos at the commencement of the investigations. In addition there were Tree Sparrows in some numbers and other species, mostly singly, as well as ordinary canaries. Perhaps the term ordinary is not strictly correct, as they are specially bred birds from which I hope in time to get a strain that can stand anything at all by way of cold. Birds of the present generation have proved themselves extremely hardy and have remained unperturbed by long spells of below-zero weather (with a minimum of —35° F.) and one of the worst blizzards in recent history.[1] Some of the cocks have not missed singing a single day through the winter, which has so far been the severest in the last twelve years. Christmas carols sung in the garden by canaries in northern Alberta may not sound

Fig. 48. THE BATHING POOL.

probable, yet visitors to the aviary on Christmas day, with the thermometer at 6° below zero, heard five or six cocks singing simultaneously. These, and the odd sparrows, provide a side interest quite apart from the main investigation.

So far, I have not found any species of our native seed-eating migrants that cannot stand the worst cold our winters can produce, and apparently they do not suffer in any way. They are not given artificial heat at any time. But they get all the essentials of abundant, clean food, exercising space (1250 cubic feet), fresh air, and a maximum amount of light (the whole of the inside is white-washed); while by means of the drop-board they have access at all times to a well lit shelter from high winds, no matter from what direction they may blow. Aviaries only a tenth of the size, erected on the same principle and built of packing cases, were my first venture (fig. 46) and proved just as satisfactory. In fact I am using them yet for control birds. They contain canaries also, controls as well as my breeding stock, the 16 hours of darkness each day during December and January, when feeding is impossible, apparently not proving detrimental to their health.[2]

[1] In a nest built under the roof of the north section at its open (west) end, a healthy brood of young canaries was hatched out on the 18th of April, in a howling blizzard with the thermometer at five degrees above zero F. In spite of continued cold, the chicks are thriving as we go to press.

[2] The experimental aviary is artificially lit for a certain length of time each night.

Anyone trapping wild birds and keeping them in an aviary as I do, will find it a distinct advantage to have a few canaries with them. They have a sobering effect and initiate the wild birds speedily into the use of such things as automatic feeders. Out of 183 Juncos and some 20 Tree and other sparrows trapped last fall, only one failed to get acquainted with the feeding arrangements of the place. There was a certain amount of food on the ground, but ten days after capture he died from starva-

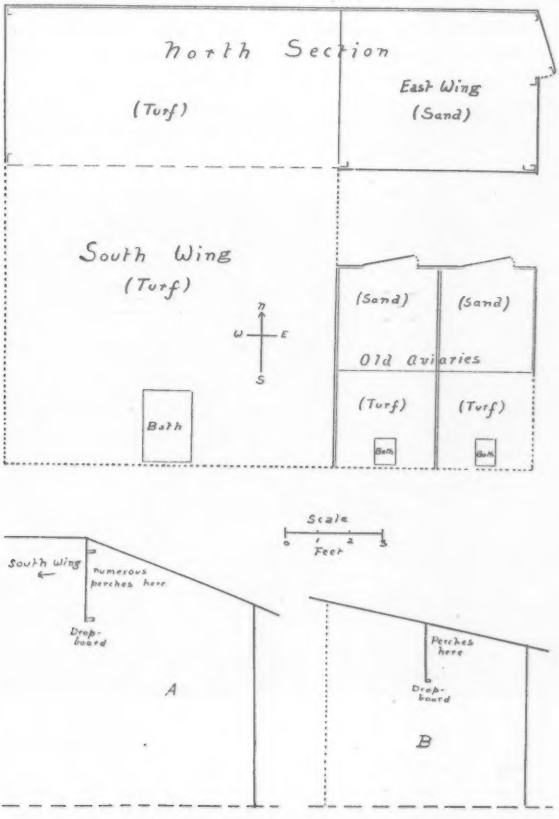

Fig. 49. PLAN AND SECTION OF AVIARY.

tion. A post mortem examination revealed neither injury nor disease, but the bird was little more than a feathered skeleton. Without the canaries such deaths would probably have been quite numerous.

University of Alberta, Edmonton, Alberta, Canada, January 1, 1927.

THE BLACK TERNS OF SASKATCHEWAN

WITH FOUR ILLUSTRATIONS

By H. H. PITTMAN

DURING the summer Black Terns (*Chlidonias nigra surinamensis*) are numerous in southern Manitoba and Saskatchewan, and large numbers of them follow the ploughs of the farmers, sharing with the Brewer Blackbirds, Grackles and Franklin Gulls the quantities of insect larvae exposed by the implements. Throughout their stay on the prairie these graceful birds are entirely beneficial to the agriculturist and their economic value cannot be over-estimated. Every effort should be made to protect them and every encouragement given to induce them to extend their nesting areas.

Fig. 50. A BLACK TERN AND NEST IN SASKATCHEWAN.

Copyright by H. H. Pittman.

Some of the food of the terns is obtained in the sloughs, but most of it seems to be secured from the ploughed land and later from among the growing grain, over which they maintain a constant patrol. They are as much masters of the air as are the gulls, which I have always thought take a delight in flying but seem to spend even more time on the wing. During their stay on the plains the terns rarely pause to settle, even to pick up food, apparently preferring to hover while gathering what they need. When they do alight it is often upon a fence-post beside a slough or even upon the connecting strands of wire. A tern trying to preserve its balance upon a single strand of fence-wire looks rather odd, yet it will persist in trying.

During the breeding season these handsome birds are gregarious and groups of twenty or thirty nests may be found in the same slough, not touching one another but dotted here and there among the water-grasses as though each pair desired a little

privacy while remaining neighborly. The nests are made of dead slough-grass stems and rest upon the floating rubbish that accumulates upon the water—remains of the vegetation of the previous year. Many may perhaps be described as floating, for they rise and fall with every ripple made by a visitor wading amongst them. There is great variation in the amount of material used and sometimes the quantity is so small that the eggs are wet. At other times quite a substantial platform is made, raising the eggs well above the water; but apparently there is no disadvantage in their being damp, for the heat in the sloughs and marshes is very great. An observer spending a June or July day crouching silently in a blind near the nests is apt to find the heat almost unbearable.

Fig. 51. NEST AND EGGS OF BLACK TERN.

Reasonably isolated places are generally chosen, but quietness is not essential; I recently saw a bird sitting on a sketchy nest within a few yards of a road in constant use. The main thing seems to be a sufficient depth of water to discourage wolves and similar enemies. Rarely, single pairs may be found nesting alone, but the grouping habit is so strong that in these cases one is inclined to infer that the pair has lost an earlier nest and consequently regards the original locality as unsafe or undesirable.

The pyriform eggs are two or three in number, although I have found four. They are olive-brown speckled with black, but show considerable variation in the arrangement of the markings. A damaged specimen, I found lying in the water in 1925, had all the dark spots united in a broad band.

Finding a small colony of Black Terns recently, in a conveniently situated slough, I decided to try to photograph them, but as the water was three feet deep, the problem of a suitable hiding-tent at first appeared insurmountable. Eventually we arranged

to cover an old buggy with burlap and draw this out to the nests. This vehicle was old-fashioned and heavy, besides having only two wheels, which made it necessary to support the front end with a box. It took hours to lift the front of this contrivance and drag it through the luxuriant and entangling slough grass, and the performance left me wet through and determined never to repeat it. As a blind it was quite a success, for I was able to spend some hours close to a nest without the owners paying any attention. They were not unconscious of my presence but seemed indifferent as long as I was not visible.

Several days after placing my hiding device in position I visited it again and found the eggs in the nest in front were chipping. I was attended by all the birds and constantly attacked by the owners of any nest I chanced to be close to. An attacking bird always approached from the rear, dropping its feet but striking with its bill. One attack left me interested and perhaps amused, but as bird after bird hit the same spot my head grew tender and I was glad to reach the shelter of the burlap.

Fig. 52. BLACK TERN HELPING A CHICK OUT OF THE EGG-SHELL.

Within a few minutes the female gracefully settled on the nest and immediately sat down, covering the eggs but seeming ill at ease and restless. Whether she was uncomfortable or not was hard to decide, but she gradually turned round and round, nearly all the time with her beak open, panting in the heat. Photographing her was simple, for she paid no attention to unavoidable noises, and I found that by talking I could get her to remain still long enough for her portrait to be taken.

A small cloud of birds was passing backwards and forwards overhead all the time and it was interesting to note that the female amid all the clamor could recognize the voice of her mate. After about ten minutes restless attention to her duties she suddenly looked up expectantly and became alert, and a moment or two later he alighted on the rubbish by the nest. After what appeared a brief conversation with his partner he moved over to the water to drink before rejoining the noisy throng in the air. Shortly after, he returned to change places with her, and throughout the afternoon they relieved one another at short intervals.

Everything slowly quieted down. The Red-winged Blackbirds recommenced feeding their young and the Carolina Rails started to call again. The terns began their endless search for food and I soon had a glimpse of the home life of a most inter-

esting pair of birds. The chicks left the eggs that afternoon, in both cases assisted by one of the parents who later carried the shells away. No food was brought to the nest. As every poultry raiser knows, newly-hatched chicks do not immediately require food, and apparently it is the same with young terns. Although the new arrivals constantly opened their beaks as if demanding nourishment, these actions were probably more or less automatic.

One little incident interested me very much and was hard to explain. In some way or other one chick tumbled or was jerked out of the nest, and for nearly half an hour it struggled to climb back without success and without help. It was almost touching the sitting bird, and consequently in plain view, but was entirely unnoticed or else completely disregarded. Fearing it would suffer in the severe heat I put it back in the nest but could not see that the returning bird noticed any difference.

On the day these chicks hatched I found an earlier hatched bird from another nest quietly resting in the water, and from the behavior of the adults suspected the presence

Fig. 53. BLACK TERN SHIELDING CHICKS FROM THE SUN.

of several more. Exactly one week after taking the photographs, I waded in the slough again to secure pictures of the young being fed, but every nest was empty and hours of wearisome searching failed to locate a single youngster, although the slough was full of them, judging by the number of old birds carrying food. By the time I had laboriously waded to a marked spot the quarry would be possibly twenty or thirty feet away in the luxuriant grass, which it could penetrate far more easily than I could.

The Black Terns, whose salt-water relatives are so aptly called "sea swallows", have a wide range in Canada, being found from Ontario to British Columbia. But their principal breeding grounds seem to be in Manitoba and Saskatchewan. They arrive about the second week in May, the exact date depending largely upon the weather. I have no dates of departure for this species, but gather from my notebooks that they leave the prairie rather early, perhaps to congregate around the larger and more permanent bodies of water. They are both handsome and interesting, but, some of my notes seem to suggest, not very intelligent; although, perhaps, more detailed observations might prove the contrary.

Wauchope, Saskatchewan, Canada, January 4, 1927.

SEASONAL FLUCTUATIONS IN BIRD LIFE IN CENTRAL OKLAHOMA

By MARGARET MORSE NICE

THIS STUDY is based primarily on 128 censuses of a half-mile stretch of creek bed near Norman, Oklahoma, the observations extending over three years. The results were so interesting to me that in 1926 I tested them by a series of monthly censuses over eight miles of diversified country; on the whole these long trips have corroborated the findings on the sample area.

Seven years ago the "First Half Mile of Snail Brook" was a woods in miniature, with primeval trees, a great deal of undergrowth, weeds, a stream and small pond, bordered by a few acres of unbroken prairie and cultivated fields; at all times cover, food and water were present in abundance. The reasons why this small tract proved representative of the bird life in general were three: First, it was attractive to a wide variety of birds; second, it was attractive at all times of the year; and, finally, it was comparatively isolated, yet not entirely so, for to the east, west and north there was no cover at all, but to the south the creek with its trees and bushes formed an avenue for many birds to come up from the deep woods near the South Canadian River.

The "Second Half Mile of Snail Brook" had large trees, but little undergrowth, almost no weeds and no pond. Consequently, the 52 censuses on this tract show much greater variation in bird life in a given season than the First Half Mile. The campus of the University of Oklahoma, which is liberally planted with trees, supports a great number of nesting birds; but because it lacks shrubbery and water, it is of little importance as a bird resort in winter and during the migrations.

Norman is in the Upper Sonoran life zone, its elevation is 1247 feet, and its rainfall averages between 30 and 35 inches a year. The summers are hot, the thermometer often going above 100 for a week at a time. The winters on the whole are rather mild, with many days reaching 70° and 80°; this pleasant weather, however, is varied by northers that bring bleak weather and occasionally near-zero temperatures. There is little snowfall.

SEASONAL FLUCTUATIONS AT SNAIL BROOK

The trees bordering Snail Brook (for brevity's sake this name will refer merely to the particular half mile[1] studied) are black willows, red and white elms, a few large cottonwoods, many hackberries, box elders and mulberries; the chief shrubs are wild plum, dogwood, elder-berry and coral-berry; the vines are poison ivy, wild grape, bittersweet, greenbriar and woodbine, while the commonest weed is giant ragweed. Surrounding the little pond there used to be three or four acres of unbroken prairie. On the rest of the land, on each side of the stream, corn, oats, wheat and cotton are raised. Bird enemies have not been plentiful; occasionally a Sharp-shinned or Cooper hawk has been seen in the fall, and a few cats have been met.

In December, 1919, at which time my systematic observations began, Snail Brook was being used as a pasture, but the cattle were soon removed. Since vegetation was allowed to grow unchecked, the region became a better bird resort than before; but in the spring of 1921 the pond was drained and a small house built on the prairie. The vegetation was not disturbed until the summer of 1922, when considerable cutting

[1] The 40 acres of this study are the east half of west half of southwest quarter section 31 R. 2 W.; the eastern border is Pickard Avenue; the western border is an imaginary line half way between this and the road to the west of the section; Lindsay Avenue is the northern edge and West Boyd Street the south.

down of trees and undergrowth took place along the north third of the tract. Because of the progressively greater destruction after this, I am confining this study to three years, December, 1919, to December, 1922.

On each "census" I went the whole half mile, recording each bird to the best of my ability; on a "visit" only a portion of the area was covered. Since the trees and thickets merely bordered the small creek, it was possible to get fairly accurate censuses as long as the leaves were off; the late spring, summer and early fall censuses were not as accurate as the others. Two censuses were taken in December, 1919, 43 during 1920, 40 in 1921, and 43 in 1922; 10 visits were made in December, 1919, 36 in 1920, 10 in 1921, and 2 in 1922. Only the censuses are counted in the calculations for the seasonal variations, but visits were often valuable for the recording of new arrivals.

So far as the birds are concerned, there are seven seasons in this region; for spring falls into early and late portions, and in the fall there are three divisions.

Winter I have counted as lasting from the first of December to about February 20; the arrival of the first scattering spring birds and (on Snail Brook) the swelling of the numbers of the winter residents by additions from the south marks the beginning of "early spring". This season lasts two months during which time the early spring transients and summer residents arrive and some of the winter residents leave. April 21 to 24 usually marks the height of the spring migration when the bulk of the summer residents come; by the end of May all are here, while the last of the winter birds and practically all the transients have left; hence I have called this period "late spring".

Summer lasts from June 1 to the middle of August; the predominating birds are the breeders, although a few transients have been recorded. "Early fall" from late August to late September sees the departure of nearly all the summer residents and the arrival of a few scattered transients. "Mid fall" is a period of about two weeks usually occurring from the last of September to about the 12th of October; it marks the lowest point of bird life throughout the year; for practically all the summer birds have left and the arrivals from the north are as yet very scarce. A great change comes the middle of October or a few days earlier; for the bulk of the fall migrants begin to arrive.

The seasonal variations in bird life at Snail Brook from 1920 through 1922 are shown in the accompanying table (I) where the results of 128 censuses of species and individuals are given.

In general, there has been much uniformity throughout the three years, the chief difference being that from late April, 1922, the number of birds decreased on account of the inroads of civilization. The average number of species seen in late fall and winter has been much the same, 12 to 13; this average has increased slightly to 14 in early spring, risen to its maximum of 22 in late spring, decreased a little in summer to 20.6, dropped to the winter level in early fall, while in mid fall it reached the lowest point of all, 7.2.

The number of individuals was greater during the cold half of the year than the warm, the average of 73 in late fall rose to 93 in winter, averaged sometimes more and sometimes less in early spring, fell to 57 in late spring, to 46 in summer, rose a little in early fall, but reached the exceedingly low figure of 14 in mid fall.

Winter shows the most stable population of any season except summer. There are three reasons for the increase of both species and individuals in the second and third winters in comparison to the first: there was more shrubbery and weeds due to the removal of the cattle; Harris Sparrows have increased markedly since 1920 as wintering birds in this whole region; during the second and third winters more kinds of sparrows remained than during the first one (White-crowned, Lincoln, Leconte and

TABLE I.—NUMBERS OF NATIVE BIRDS SEEN ON SNAIL BROOK

Winter		Number of Censuses	Species		Individuals	
			Average Number	Range	Average Number	Range
1919-20	Dec. 6-Feb. 19	6	10	8-14	53	26-73
1920-21	Dec. 5-Feb. 13	8	14	12-19	109	55-166
1921-22	Dec. 6-Feb. 14	11	13	8-18	117	50-182
	Total	25	Aver. 12.5	8-19	93	26-182
Early Spring						
1920	Feb. 23-Apr. 19	10	12.8	9-20	100	26-252
1921	Feb. 20-Apr. 19	11	13.3	7-20	74	12-164
1922	Feb. 20-Apr. 18	10	15.8	11-23	98	52-131
	Total	31	Aver. 14	7-23	91	12-252
Late Spring						
1920	Apr. 21-May 25	9	24	19-31	60	50-83
1921	Apr. 25-May 31	6	22	14-27	60	46-70
1922	Apr. 25-May 18	5	19	17-20	50	39-74
	Total	20	Aver. 22	14-31	57	39-83
Summer						
1920	June 1-Aug. 11	5	21	18-26	46	29-60
1921	June 9	1	23	23	41	41
1922	June 8-Aug. 10	4	18	15-22	52	25-86
	Total	10	Aver. 20.6	15-26	46	25-86
Early Fall						
1920	Aug. 22-Sept. 17	2	12.5	12-13	62	54-70
1921	Sept. 27	1	15	15	71	71
1922	Aug. 31-Sept. 26	4	10.5	9-13	32	21-48
	Total	7	Aver. 12.5	9-15	55	21-71
Mid Fall						
1920	Sept. 29-Oct. 10	4	8	6-11	17	10-26
1921	Oct. 5-Oct. 13	2	5	5	12.5	10-15
1922	Oct. 1-Oct. 7	2	8.5	8-9	13.5	12-15
	Total	8	Aver. 7.2	5-11	14	10-26
Late Fall						
1920	Oct. 16-Nov. 29	6	14	9-18	94	63-167
1921	Oct. 18-Nov. 28	9	12	7-18	84	34-130
1922	Oct. 11-Nov. 25	10	12	8-17	40	17-90
	Total	25	Aver. 13	7-18	73	17-167

Savannah sparrows), while Arctic Towhees were more common. The regular winter residents were Harris, Field and Song sparrows, Juncos, Cardinals and Plumbeous Chickadees.

The vegetation on Snail Brook shows signs of spring long before there is any change among the birds; on February 12, 1920, and January 28, 1921, elms were in full bloom, grass was green and sourdock two inches high. "Early spring" attained its maximum numbers of both species and individuals during the first half of March. The numbers of birds vary more during this season than in any other. In 1920 and 1921, there was severe cold weather near the end of March; this checked migration and corresponded to a marked diminution in the numbers of both species and individuals of birds, the second week in April showing an increase again. The spring of 1922, however, advanced without setbacks and there was no dearth of birds at this period. Tree Sparrows leave in March, the last Song Sparrows and Juncos about

the middle of April. Killdeer and Cowbirds usually appear in late February; Western Mourning Doves, Bronzed Grackles, Phoebes, Vesper Sparrows, Ruby-crowned Kinglets, Blue-gray Gnatcatchers and Brown Thrashers generally come in March, while Scissor-tailed Flycatchers, Western Lark Sparrows and many transient sparrows are due in early April. Bluebirds, Downy Woodpeckers and Chickadees start nesting in March.

Between April 20 and May 5 the great bulk of summer residents and transients may be expected. "Late spring" has the maximum number of species, for all four categories of birds are present, the permanent residents, all the summer residents, many transients and a few winter residents; for Harris Sparrows and Arctic Towhees do not leave until early May. Acadian Flycatchers, Orange-crowned Warblers, Western House Wrens and Olive-backed Thrushes were regular transients.

It seems curious that there is so little difference in the average number of species seen in a census in late spring and one in summer; several suggestions may be offered in explanation. The main reason is that, since we have few transient warblers, our spring migrations are not marked by the "waves" that are encountered in the east. It must also be considered that several different species of transients, seen on different days, would count no more in the averages than one summer resident. More different kinds of birds were seen in late spring than during any other season; for 73 species were recorded in that season during the three years, 60 in early spring, 60 in late fall, 46 in summer, 44 in winter, 35 in early fall and 30 in mid-fall.

In summer a number of birds visit Snail Brook that do not nest on it; moreover, Solitary Sandpipers have been recorded on June 4 and August 11, 1920, and a Yellow-bellied Flycatcher also on the latter date. I calculated that 22 species and 31 pairs nested on the forty acres in 1920, 23 species and 37 pairs in 1921, and 18 species and 23 pairs in 1922, 33 different species in all. The following birds nested every year: Western Mourning Dove, Yellow-billed Cuckoo, Blue Jay, Orchard Oriole, Bronzed Grackle, Western Lark Sparrow, Cardinal, Blue Grosbeak, Western Mockingbird, Brown Thrasher and Plumbeous Chickadee. Eight species nested two years: Bob-white, Crested Flycatcher, Eastern Meadowlark, Baltimore Oriole, Dickcissel, Bell Vireo, Yellow Warbler and Robin; while 14 species bred during one year only: Southern Downy Woodpecker, Red-headed Woodpecker, Scissor-tailed Flycatcher, Kingbird, Wood Pewee, Red-winged Blackbird, Cowbird, Indigo Bunting, Painted Bunting, Maryland Yellow-throat, Catbird, Carolina Wren, Texas Wren and Bluebird.

During early fall a few birds are still occupied with families until late August: Doves, Cardinals, Blue Grosbeaks and Catbirds; but most of the summer residents gradually leave. The transients are scattering: an occasional Bittern, Red-shafted Flicker, Redstart, and the migrating swallows.

Mid fall is a curious time because of the striking lack of birds; since all the summer birds but a few doves, Scissor-tails and Brown Thrashers have left, and the transients are few and far between, the population is confined almost to the permanent residents. Thus we have the opposite condition from that obtaining five months earlier. Not only are the species few; the individuals are even more reduced proportionately. Nevertheless, interesting transients sometimes appear; for instance, Red-tailed, Red-shouldered and Sparrow hawks, a Yellow-bellied Sapsucker, Phoebe, Western Meadowlark, Golden-crowned and Ruby-crowned kinglets, and even a Rock Wren.

A great change occurs from the 12th to the 16th of October, for then the fall sparrows come; the thickets are full of birds many of which pass on, but their places

are filled by later arrivals. Some years there is a decrease in birds in late October and early November, but in other years the number of species stays much the same throughout late fall, the number of individuals fluctuating somewhat but increasing toward the end of November. By this time the winter population is well established.

One hundred and thirteen species of native birds were recorded from 1920 through 1922; 94 were seen the first year, 86 the next, and 83 the third year. Of these, 10 were permanent residents on Snail Brook, 23 summer residents, 34 winter visitants and 46 transients.

I have found only two studies that can well be compared with mine, that is, where the seasonal variations in the bird life of a limited area are considered; one of these comes from the Atlantic coast and the other from the Pacific. Mr. H. W. Wright (Birds of the Boston Public Garden, Boston, Houghton Mifflin, 1909, 238 pp.) found that the 24 acres of the Boston Public Gardens were chiefly a stopping place in migration; during seven winters there were no birds at all, but during two a pair of Chickadees stayed there; in the summer from 3 to 5 species nested. From March to May, from 52 to 80 different species were seen each spring, the daily counts ranging apparently from no birds at all to as many as 38 species and 90 individuals, and 28 species and 137 individuals. The average number of individuals seen during 15 days in May ranged from 11 to 44 during the nine years. One hundred and sixteen kinds of native birds were recorded for the Gardens.

On the campus of the University of California (J. Grinnell, Condor, XVI, 1914, pp. 28-40) a very different situation is shown; for the "number of birds to be seen at any one time is pretty constant. A daily 'horizon', that is, the number of species noted in the course of one day's or part day's observation, consists ordinarily of 20 to 24 species." Examples of such horizons were January 20, 20 species; February 11, 26; March 25, 22; July 3, 29, and October 18, 27. At that time 97 species had been found on the 523 acres of the Berkeley campus, but by now (Grinnell and Wythe, Birds of the Berkeley Campus, Museum of Vertebrate Zoology, Univ. of Calif., 1926) the number has reached 135, of which 38 are permanent residents, 21 summer residents, 40 winter visitants, 18 transients and 18 vagrants.

SEASONAL FLUCTUATIONS ON THE EIGHT-MILE CENSUS

Largely for the purpose of checking the results on seasonal fluctuations in bird life obtained on Snail Brook from 1920 to 1922, in 1926 I mapped out an eight-mile walk over varying kinds of habitats: two miles of Snail Brook, a pond, a small swamp, deep woods, prairie, the South Canadian River, and streets in town. I took a census of this each month with an extra trip in October. (During the summer I had to divide the territory and make three expeditions early in the morning for each month.) The results are shown in Table II.

The findings of these eight-mile censuses and the half-mile ones corroborate each other well on the whole, especially in respect to the numbers of species seen. There is a rise from the winter numbers of 36, 39 and 35 to 45 in early spring, reaching the maximum of 61 and 66 in late spring; a uniform level of 55 during the three summer months, a drop to 44 in early fall, and to 32 in mid fall; a rise to 44 on October 16 at the peak of the fall migration and a return to the winter level of 37 in November. These figures correspond remarkably well, proportionally, to those of Snail Brook, the only difference being that in comparison to the winter numbers, Snail Brook's summer population was slightly higher than that of the eight-mile census, while somewhat more birds were found on the latter than the former during early and mid fall.

As to individuals, the increases and decreases in numbers follow in general the same lines as at Snail Brook: more birds were found in winter than at any other time;

TABLE II.—NUMBERS OF NATIVE BIRDS ON THE EIGHT MILE CENSUSES COMPARED WITH SNAIL BROOK

Season	Numbers of Birds on 8 Mile Censuses			Average Numbers on Snail Brook	
	Date	No. of Species	No. of Individuals	No. of Species	No. of Individuals
Winter	Dec. 4	36	860	—	—
	Jan. 1	39	2400	12.5	93
	Feb. 1	35	1400	—	—
Early Spring	Mar. 20	45	600	14	91
Late Spring	Apr. 24	61	460	22	57
	May 4	66	450	—	—
Summer	June 1, 11, 21	54	460	20.6	46
	July 4, 14, 27	55	550	—	—
	Aug. 1, 10, 12	55	460	—	—
Early Fall	Sept. 18	44	340	12.5	55
Mid Fall	Oct. 2	32	200	7.2	14
Late Fall	Oct. 16	44	950	13	73
	Nov. 13	37	550	—	—

in late spring there were fewer birds than in early spring; summer gave about the same numbers as late spring (except for July when flocks of Robins and Grackles gave 50 extra birds); mid fall dropped to a seventh of the winter average, while late fall approached the winter numbers.

The difference between winter and early spring is much greater on the eight-mile censuses than at Snail Brook, due partly to the great flocks of blackbirds and crows seen during January and February, 1926, and also to the fact that the single census in early spring was taken at a time when numbers were rather low. (If I had gone February 20, also, the average number of individuals in early spring would undoubtedly have been larger.) Early fall on the long trip shows fewer individuals than does summer, while with Snail Brook the opposite is true; the explanation probably lies in the fact that conditions are fluctuating at this season; on another day I might have met several flocks of birds and have recorded more birds than in summer. Early fall is represented by rather few censuses, only seven on Snail Brook and one eight-mile walk.

One hundred and thirty-one kinds of birds were seen on these trips in 1926; of these, 22 are residents in the general region, 39 summer residents, 25 winter visitants and 45 transients.

SUMMARY.—From 128 censuses during three years on a representative tract of land forty acres in extent, and also from 13 censuses taken during one year over eight miles of diversified country, certain conclusions can be drawn as to the seasonal fluctuations of bird life in Cleveland County, Oklahoma:

1. The number of species present increases gradually from its winter level to a maximum in late April or early May, decreases somewhat in summer, more in early fall and very markedly in early October, increasing again rather suddenly in mid-October to the winter level.

2. Individuals are most abundant from December to March, gradually decreasing until they reach a very low point in early October; from the middle of October through November they regain the winter numbers.

Norman, Oklahoma, January 10, 1927.

THE FALCONS OF THE McKITTRICK PLEISTOCENE

WITH ONE ILLUSTRATION

By LOYE MILLER

THE PRESENT writer's paper on the McKittrick birds, published in 1925,[1] embodied the results of an extended study of the collections taken from the excavations up to that time. Falcons were rare, as were most raptors other than *Aquila*. *Falco sparverius* was fairly abundant, but only two specimens represented any larger species of the genus. At the time that report was published, excavation had been discontinued and the fauna of the deposit was supposedly fairly well represented in the collections. A new asphalt lens was, however, opened up by later excavations, during 1925, and from this pit, removed but a few feet from the former, there has come quite a different bird fauna.

Water birds are less in evidence and raptorial species are greatly increased both in numbers and in variety. This addition to the collections bears a strong resemblance to the Rancho La Brea assemblage, although there are some markedly outstanding differences. *Teratornis,* represented in the previous collection by only two bones, becomes abundant; and yet *Cathartornis, Gymnogyps* and *Catharista* are entirely wanting. *Neogyps* and two species of *Geranoaëtus* are present. *Neophrontops* is abundant. *Asio* appears, and *Bubo* becomes fairly abundant. *Parapavo* remains unrepresented. Thus there appear some interesting similarities, and at the same time contrasts, with Rancho La Brea and with the previous McKittrick collections.

The larger members of the genus *Falco,* rare among the thousands of birds from Rancho La Brea, come very much to the front in this new McKittrick collection. But two specimens, representing *Falco peregrinus,* constituted the total material from the former collection that is ascribable to the so-called noble falcons. Now there is at hand a fair series of well preserved remains, the study of which yields some interesting results. A series of tarsi now under scrutiny falls readily into three groups representing, respectively, two surviving species, *mexicanus* and *peregrinus,* and one species heretofore undescribed.

Since the previous publication, also, there has come to hand a number of Recent specimens for comparison. The tarsus and tibia of the aplomado falcon from Mr. H. S. Swarth, the same parts of the white gyrfalcon from the collection of Mr. D. R. Dickey, and skeletons of *Falco fulvigularis, Herpetotheres, Ibycter* and *Elanus,* with other less closely related species from the tropics, have been added to the writer's collection. With this increased representation both of Recent and of fossil material, one feels at liberty to speak with greater assurance in assigning fossils to their proper specific positions. The results of close scrutiny of the "noble" falcons are here offered.

The great majority of specimens in the McKittrick series belong to the species *Falco mexicanus.* The tarsus is larger on the whole than it is in *F. peregrinus,* although the latter is designated as the "great-footed hawk". Such designation is in a way justified when the relative lengths of the digits are considered; for a comparison between the tarsi of a large duck hawk and a small prairie falcon shows the shorter bone of *peregrinus* to have the larger trochleae. Further differences in the trochleae are as follows.

The middle trochlea is not only larger in *peregrinus* but its proximo-distal diameter is greater in relation to its dorso-ventral diameter. This condition results in a greater portion of the arc being visible when viewed from directly in front (dorsal

[1] Univ. Calif. Publ., Bull. Dept. Geol. Sci., vol. 15, no. 9, pp. 307-326.

aspect). The plane of the groove in the middle trochlea is less obliquely inclined to the sagittal plane of the shaft. The outer trochlea appears to be raised to a greater degree above the level of the middle trochlea. Proximally, as viewed from in front, the bone is less excavated, the papilla of the tibialis anticus is nearer the inner profile, and it is lower down on the shaft. The head is more expanded; the inner cotyla is dropped farther below the level of the outer, and its inner border is extended into a thinner saucer edge of bone. Viewed from the axial aspect, *peregrinus* is seen to have a broader fossa on the axial side of the plantar ridge, for the flexor muscle of the hallux. Viewed from the proximal end, there appears a recognizable difference in the tuberosity

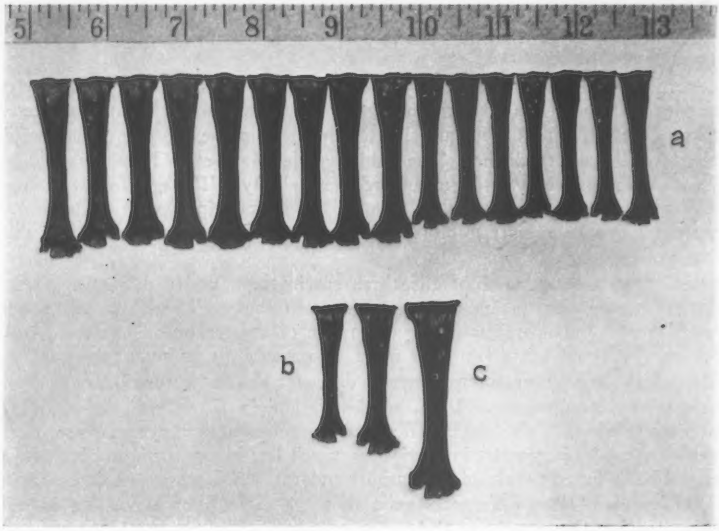

Fig. 54. TARSI OF PLEISTOCENE FALCONS. ×½.
a. *Falco mexicanus.*
b. *Falco peregrinus.*
c. *Falco swarthi.*

on the ventral margin of the outer cotyla. It is heavier in *peregrinus.*

Separated upon the above characters the duck hawk is found to stand in the ratio of two in twenty-one with the other large falcons, and the prairie falcon stands eighteen in twenty-one. In size the fossil peregrine grades down below the smallest Recent specimen at hand, but the hiatus is not great.

The aplomado falcon (*Falco fusco-caerulescens*) has the same linear dimension as the smaller peregrines or even the smallest prairie falcon, but the other characters of the bone are quite at variance. The aplomado falcon is a long-legged bird with relatively slight lifting power of the foot and with weaker contours of the tarsus. Thus the bone comes to resemble that of the sparrow hawk. *Falco fulvigularis,* on the other hand, resembles a diminutive duck hawk, a truth naturally to be expected by anyone who has watched this midget "ace" in action above his native jungle tops.

Falco swarthi, new species

Type specimen, no. 27133, Museum of Paleontology, University of California. Complete tarso-metatarsus. Pleistocene asphalt of McKittrick, California. Size, gigantic, equalling that of *Falco islandus* but differing in the following characters. 1. The form of the hypotarsus differs. 2. Papilla of tibialis anticus shorter, broader, and nearer the axial margin of the bone. 3. Outer portion of hypotarsus heavier. 4. Middle trochlea different in shape. 5. Outer trochlea smaller. 6. Inner trochlea larger.

The middle trochlea is greater in its antero-posterior diameter and less in its promixo-distal diameter than is the case with the gyrfalcon, a ratio that results in a more open curve and would suggest a smaller amplitude of movement in the middle toe. The furrow in this trochlea is less deep and lies more obliquely to the sagittal plane.

Superficially, the Swarth falcon resembles a gigantic prairie falcon; but the great size sets it off at once from the series of eighteen perfect tarsi of the latter species. In addition to the size hiatus there are slight differences in the contour of the proximal end that are difficult to define. The habits of the birds must have been much the same, with differences only in degree of predatory ability. The position of the papilla of the tibialis anticus would indicate a relatively greater lifting power of the foot. In this respect *Falco swarthi* resembles the duck hawk and the gyrfalcon more than it does the prairie falcon.

Scrutiny of the tibiotarsi of the three species here under discussion from the asphalt shows some interesting differences between them. The distal two-thirds of the bones are the only portions preserved in two of the species. *Falco peregrinus* is at once seen to stand apart from the other two species in its relatively small outer condyle and in the smaller antero-posterior diameter of the two condyles as compared with the transverse diameter. In *F. mexicanus* and in *F. swarthi* the condyles are almost exactly equal. The sagittal diameter in relation to the transverse diameter across both condyles is greatest in *mexicanus,* much less in *swarthi,* and least in *peregrinus.* The following table of dimensions and ratios will express this character in numerical form. Other differences exist that are difficult of expression in mathematical terms but that appear to the eye on close scrutiny.

TIBIAL CONDYLES OF FALCONS

Sagittal diameters compared with the transverse diameters over all

	peregrinus		*mexicanus*		*swarthi*	
	mm.	%	mm.	%	mm.	%
Outer condyle	8.6	65	9.6	76.3	12	74.8
Inner condyle	9.3	72	9.5	76	12.5	77.5
Across both condyles	12.8	100	12.5	100	16.9	100

SUMMARY.—For some reason the noble falcons were entrapped in far greater numbers at McKittrick than at Rancho La Brea. These remains fall into three specific categories, of which *Falco mexicanus* is the most abundant, *Falco peregrinus* much less abundant, and a new and gigantic species, *Falco swarthi,* least numerous. This latter species in its osteological characters resembles *Falco mexicanus* perhaps more than it does any other species examined, but far exceeds it in size.

Los Angeles, California, January 29, 1927.

ADDITIONAL BIRD RECORDS FROM LOWER CALIFORNIA

By LAURENCE M. HUEY

SUPPLEMENTING an article by the writer published in *The Auk* (XLIII, July, 1926, pp. 347-362), entitled "Notes from Northwestern Lower California, with the Description of an Apparently New Race of the Screech Owl", it is now possible, as the result of additional field work, to add materially to the list of species worthy of record. In connection with the data here given, the writer acknowledges the coöperation of Mrs. May Canfield and Joseph W. Sefton, Jr., who collected some of the specimens that are mentioned. He also wishes to thank for their assistance Dr. H. C. Oberholser, of the U. S. Biological Survey, and Dr. Joseph Grinnell and Mr. H. S. Swarth, of the Museum of Vertebrate Zoology, Berkeley, California, who provided identifications in certain cases where the writer was in doubt. All *Passerella* records listed herewith have been subjected to the close scrutiny of Mr. Swarth, who is an authority on this genus.

Columba fasciata fasciata. Northern Band-tailed Pigeon. A single female of this pigeon was collected two miles south of La Joya, at Valladares Creek, on the west slope of the Sierra San Pedro Martir, September 29, 1926. The bird flushed from a cascara bush, where it was feeding on the ripe, black, bitter berries. A flock of about 200 was seen many times during late November and early December, 1926, when the writer was camped at Rancho San Pablo, ten miles southeast of Alamo. The birds remained in the vicinity to feed on acorns, of which there was an abundant crop.

Melopelia asiatica trudeaui. White-winged Dove. While the White-winged Dove was recorded in *The Auk*, the collecting of an immature bird, October 1, 1926, at San José, altitude 2500 feet, seems worthy of additional citation. This specimen was taken in the cottonwoods, near the front yard of the ranch house, and, from the development of its plumage, could not have been hatched a great distance from the place, thus marking a very late date for the nesting of the species.

Cathartes aura septentrionalis. Turkey Vulture. A single buzzard flew past camp, at Rancho San Pablo, ten miles southeast of Alamo, very early on the morning of December 3, 1926. This was the last time this species was observed during the writer's stay there, until December 14.

Haliaëëtus leucocephalus leucocephalus. Southern Bald Eagle. A pair of these eagles was seen several times during the latter part of October, 1926, flying over the area about Laguna Hanson, in the Sierra Juarez. The only other occurrence of Bald Eagles in northwestern Lower California known to the writer is that of a pair which occupies a nest located in a huge sycamore tree in Guadalupe Canyon, about 45 miles below the International Boundary.

Sphyrapicus varius daggetti. Sierra Red-breasted Sapsucker. This sapsucker was also recorded in the previous paper and the following records are supplementary: a male taken at Laguna Hanson, Sierra Juarez, October 14, 1926; and two more males taken at Rancho San Pablo, ten miles southeast of Alamo, December 1, 1926, and December 5, 1926, respectively.

Sphyrapicus thyroideus. Williamson Sapsucker. Found as a migrant in the pine belt of the Sierra Juarez, near Laguna Hanson, and four specimens, all females, taken there October 11, October 14, October 30, and November 3, 1926.

Empidonax difficilis difficilis. Western Flycatcher. An immature bird of this species was taken on October 18, 1926, and marked a late and the only occurrence of an *Empidonax* during our stay at Laguna Hanson, Sierra Juarez, from October 8 to November 3, 1926.

Carpodacus cassini. Cassin Purple Finch. One female specimen of this species was taken October 25, 1926, at Laguna Hanson in the Sierra Juarez.

Loxia curvirostra stricklandi. Mexican Crossbill. These birds were not uncommon in the pines about Laguna Hanson in the Sierra Juarez. They usually were seen in family parties, and four streaked young were collected during October, 1926. The young were rather noisy and seemed to be always begging the accompanying parents for food. This would seem to indicate their presence in the region as breeding birds.

Zonotrichia leucophrys leucophrys. White-crowned Sparrow. A male of this form, taken at La Grulla, Sierra San Pedro Martir, on September 28, 1926, marks the writer's earliest fall record for Lower California.

Zonotrichia coronata. Golden-crowned Sparrow. First taken on October 13, 1926, when Mrs. May Canfield captured an immature female at Laguna Hanson in the Sierra Juarez. At Rancho San Pablo, ten miles southeast of Alamo, this species was fairly common during early December and was seen afterwards, although only two specimens were taken.

Passerella iliaca altivagans. Alberta Fox Sparrow. Recorded by specimens taken as follows: a female at El Rayo, October 12, 1926, an immature female at Laguna Hanson, October 29, 1926, a female at Laguna Hanson, November 16, 1926, and a male at Laguna Hanson, November 18, 1926.

Passerella iliaca unalaschcensis. Shumagin Fox Sparrow. A single specimen of this race was taken at La Grulla in the Sierra San Pedro Martir, September 28, 1926.

Passerella iliaca sinuosa. Valdez Fox Sparrow. Found to be fairly common in the Sierra Juarez, at both El Rayo and Laguna Hanson, from October 12 to October 30, and recorded at Rancho San Pablo, ten miles southeast of Alamo, November 22 and 26, 1926.

Passerella iliaca schistacea. Slate-colored Fox Sparrow. Fairly common at Laguna Hanson and El Rayo in the Sierra Juarez from October 13 to November 11, 1926.

Passerella iliaca fulva. Warner Mountains Fox Sparrow. A single specimen of this race was taken at Laguna Hanson, in the Sierra Juarez, October 13, 1926.

Passerella iliaca megarhynchus. Thick-billed Fox Sparrow. Two specimens were taken at Laguna Hanson in the Sierra Juarez, a male on October 13, and an immature female on November 14, 1926.

Passerella iliaca canescens. White Mountains Fox Sparrow. This race was fairly common at Laguna Hanson in the Sierra Juarez from October 12 to October 30; and a single bird was taken November 22, 1926, at Rancho San Pablo, ten miles southeast of Alamo.

Passerella iliaca monoensis. Mono Fox Sparrow. This race proved to be the most commonly represented of all the fox sparrows, and specimens were taken from October 11 to November 18, 1926, at Laguna Hanson and El Rayo, in the Sierra Juarez, and again at Rancho San Pablo, ten miles southeast of Alamo.

As anticipated in the article in *The Auk*, more field work in Lower California during the fall has resulted in the capture of eight forms of the sixteen known in the genus *Passerella*. Yet there still remains much to be discovered regarding the wintering of the fox sparrows. The specimens taken, however, have enlarged the known winter ranges and, in some cases, the extent of this enlargement has been surprising, especially in regard to the form *sinuosa*. The forms *monoensis* and *schistacea* apparently winter commonly through the mountainous region, though they have also been found fairly common at points in Southern California during the winter. The forms *fulva* and *stephensi* have been recorded during the winter, but only from a mere scattering of specimens taken in California, which did not define their winter ranges. It was to be expected that these two forms would be found in this northern part of Lower California. Such, however, was not the case, and, with the taking of but a single specimen of *fulva*, and none at all of *stephensi*, their whereabouts during the winter months is, as yet, unsolved.

Piranga hepatica oreophasma. Arizona Hepatic Tanager. When en route to the summit of the Sierra San Pedro Martir, on September 25, 1926, a female tanager of puzzling identity was shot from a large live oak tree one mile south of La Joya. The bird was exceedingly tame and was in the company of a flock of a dozen Western Tanagers (*Piranga ludoviciana*). The specimen was identified by Dr. H. C. Oberholser of the United States Biological Survey, who was the original describer of the race.

Hylocichla ustulata ustulata. Russet-backed Thrush. A single fall record: an immature female collected at Laguna Hanson, in the Sierra Juarez, October 12, 1926.

Ixoreus naevius meruloides. Northern Varied Thrush. Three records: a female collected November 17 and another female collected November 18, 1926, at Laguna Hanson, in the Sierra Juarez; and on November 26, 1926, while camped at Rancho San Pablo, ten miles southeast of Alamo, the writer shot at, but did not secure, a male Varied Thrush, as it was drinking from a small rill at dusk.

Sialia currucoides. Mountain Bluebird. A flock of a dozen was seen at Rancho San Pablo, ten miles southeast of Alamo, December 5, 1926.

Natural History Museum, Balboa Park, San Diego, California, February 18, 1927.

NOTES ON SOME BIRDS OF THE SOUTHERN EXTREMITY OF LOWER CALIFORNIA

By CHESTER C. LAMB

THE REGION under consideration in this paper is all that part of the Lower Californian peninsula south of an imaginary line connecting Todos Santos on the Pacific Ocean with La Paz on the Gulf of California. During nearly two years residence in different parts of the Cape region, the present writer observed some 225 species of birds, and of that number, forty seemed so rare, or have been reported upon so meagerly, that it will likely be of interest to others for me to record them.

John Xantus was the first naturalist to visit the Cape region, followed by Lyman Belding and Walter Bryant. William Brewster (Bull. Mus. Comp. Zool., XLI, 1902) has given us the most extensive report upon the birds of this region, summing up the writings of all the previous naturalists in combination with the observations of his own collector, M. Abbott Frazar. I have taken Brewster's statements as the main basis for selecting the seemingly new matter now presented.

Colymbus dominicus brachypterus. Mexican Grebe. Has been reported as occurring formerly at Santiago, Miraflores, and San José del Cabo. I saw no place suitable for this grebe at Miraflores, and at Santiago the lagoon was washed away by a flood several years ago. At San José del Cabo it was seen by me only on one occasion, February 10, 1923, when two females were secured. These are now nos. 1257 and 1258 in the collection of Mr. R. M. Barnes of Lacon, Illinois.

Podilymbus podiceps. Pied-billed Grebe. Not seen at La Paz, but a few were seen both at San José del Cabo and Todos Santos, where it is a resident. I saw small young at each of these places, thus establishing the species as a breeding bird. An adult female taken at Todos Santos, July 19, 1924, is now no. 37306 in the collection of Dr. Louis B. Bishop of Pasadena, California.

Gavia pacifica. Pacific Loon. This bird has not previously been reported from the Cape region. In the last half of February and during the month of March, I found it abundant in La Paz Bay and along the coast. Boys frequently caught the birds with hook and line from the wharf. An immature male taken February 22, 1924, is now no. 2873 in the Barnes collection.

Hydroprogne caspia imperator. Caspian Tern. Not a common bird. A few seen in winter and spring both at La Paz and San José del Cabo. An adult male taken at the latter place, April 3, 1923, is now no. 1561 in the Barnes collection.

Sterna forsteri. Forster Tern. Common during the winter at San José del Cabo and in La Paz Bay. An immature female taken at the latter place September 17, 1923, is now no. 2115 in my own collection.

Sterna hirundo. Common Tern. Seen commonly during the winter about La Paz and Espiritu Santo Island. Heretofore this tern has been reported only from San José del Cabo in September. A juvenile female taken November 29, at Espiritu Santo Island, is now no. 36446 in the Bishop collection.

Sterna antillarum browni. Brown Least Tern. Reported heretofore only from San José del Cabo, and that, too, is the only place where I saw it. A flock of thirty was nesting on the beach, thus making this the southernmost known breeding station of the species on the Pacific coast. The birds arrived April 26, 1923, but did not start to lay their eggs until July 1. An adult female taken May 21 is now no. 36448 in the Bishop collection.

Chlidonias nigra surinamensis. Black Tern. An adult male seen and secured at Todos Santos, September 8, 1924, is now no. 37312 in the Bishop collection.

Sula nebouxii. Blue-footed Booby. No other observer has reported this bird from this district, and it was seen only once by me, off the wharf at La Paz, March 1, 1924, when two were secured from a flock of five. Unlike the Brewster Booby this species is not a wanderer, but prefers the vicinity of the islands on which it nests. An adult male is now no. 2906 in the Barnes collection.

Sula brewsteri. Brewster Booby. There are only two records from the region under discussion, that of a bird taken near Pichilinque Bay, January, 1883, and one at

San José del Cabo, September 10, 1887. Townsend observed it at several places in the Gulf. I found this bird commonly during March in La Paz Bay, and in November about Espiritu Santo Island. An adult female taken at La Paz March 1, 1924, is now no. 36449 in the collection of Dr. Bishop.

Guara alba. White Ibis. Unlike other observers I found this bird scarce and only seen at La Paz a few times. An adult male taken March 6, 1924, is now no. 2925 in the Barnes collection.

Ixobrychus exilis hesperis. Least Bittern. This bird has been reported as common only at San José del Cabo in the fall migration. I saw only one at that place February 6, 1923. A single bird was seen and secured in the mangrove swamps at La Paz, September 21, 1923, and is now no. 2142 in the Barnes collection.

Ardea herodias sanctilucae. San Lucas Blue Heron. Common along the coast. Breeds in small colonies on one of the small islands in La Paz Bay near the town of La Paz. May 27, 1924, I found two nests with, respectively, two and three fresh eggs. The nests were placed low in a species of cactus. An immature female taken May 9, 1923, is now no. 36460 in the Bishop collection.

Rallus virginianus. Virginia Rail. Rare. Hertofore reported only from San José del Cabo. I saw and secured one at Todos Santos, October 31, 1923; it is now no. 2332 in the Barnes collection.

Gallinula chloropus cachinnans. Florida Gallinule. Seen only at San José del Cabo where commonly resident in the tules back of the beach. I saw several there with downy young during June. It is peculiar that in a similar environment at Todos Santos and San Pedro no gallinules have ever been reported. A male taken April 25, 1923, is now no. 13350 in the collection of D. R. Dickey, of Pasadena.

Fulica americana. American Coot. Common winter and also breeding bird at Todos Santos and San José del Cabo. Seen also rarely at La Paz and El Oro. An adult female taken at Todos Santos, July 19, 1924, is now no. 37323 in the Bishop collection.

Pisobia bairdii. Baird Sandpiper. Rare. A few individuals seen at San José del Cabo, April 5, 1923, and four at La Paz, September 24, 1923. The only other record for this bird in Lower California is of four specimens taken by Frazar at San José del Cabo, between September 13 and 30. An adult female taken by me at San José del Cabo, April 5, is now no. 36465 in the Bishop collection.

Pelidna alpina sakhalina. Red-backed Sandpiper. The only record for this bird in the Cape region is that they were seen, but no specimens taken, south of latitude 24° 30′ by Belding (Proc. U. S. Nat. Mus., VI, 1883, p. 351). On one occasion, only, I saw this bird, namely December 23, 1923, on the mud flats near La Paz, when several were seen and two secured which are now nos. 2587 and 2588 in the collection of Edw. E. Armstrong, of Chicago, Illinois.

Calidris alba. Sanderling. A rare migrant. Seen once at San José del Cabo, May 2, 1923, and once at Todos Santos, November 15, 1923. The former, an adult male, is now no. 36469 in the Bishop collection.

Tringa solitaria cinnamomea. Western Solitary Sandpiper. Rather common at San José del Cabo and Todos Santos, arriving in early August. Seen also in the Sierra de la Laguna, July 31, 1923, and August 26, 1924, and two at a roadside rain puddle near La Paz in September. An adult female taken July 31, 1923, in the Sierra de la Laguna and another taken at Todos Santos, September 19, 1924, are now nos. 36091 and 37328 in the Bishop collection.

Heteroscelus incanus. Wandering Tattler. Seen only once, on Espiritu Santo Island, November 6, 1923.

Buteo abbreviatus. Zone-tailed Hawk. A rare bird. Four seen at El Valle in January, and two at Todos Santos, one September 14, 1924, and the other November 13, 1923. Two immature birds, a male and female, taken at El Valle, January 21 and 23, 1924, are now nos. 36504 and 36505 in the Bishop collection, and an adult female taken at Todos Santos November 13, 1924, is in the Barnes collection.

Asio flammeus. Short-eared Owl. There are but two records of this bird being taken in this region, one by Xantus at Miraflores, November 25, 1860, and the other by Chas. H. Townsend at Cape San Lucas, March 23, 1911. I saw three during the month of February at San José del Cabo, but did not observe them elsewhere at any time.

Speotyto cunicularia hypugaea. Burrowing Owl. Seen on but two occasions, once at San José del Cabo, April 12, 1923, and again at Todos Santos, October 3, 1923. The latter is now in the Barnes collection.

Micropallas whitneyi sanfordi. Sanford Elf Owl. This was rather numerous at Miraflores in July. I also took an adult male at Todos Santos, November 14, 1923, which is now no. 36119 in the Bishop collection.

Coccyzus americanus occidentalis. California Cuckoo. Reported but once from the Cape region, near Triunfo, July 5, 1887. I met this bird only twice, once at San José del Cabo, June 29, 1923, and once at Todos Santos, September 3, 1924.

Agelaius phoeniceus sonoriensis. Sonoran Red-wing. Seen only at San José del Cabo, during March and April, when a small flock lived in a clump of tules near the town. Three specimens were taken, two March 17, 1923, and one April 5; these are now in the Barnes collection.

Sturnella neglecta. Western Meadowlark. Met once at San José del Cabo, where five were seen February 24, 1923, and again at El Oro, February 1, 1924, when four were seen and one, an adult female, was taken, which is now no. 36618 in the Bishop collection.

Passerculus rostratus halophilus. Laguna Marsh Sparrow. Not nearly as plentiful as *P. r. rostratus* or *P. r. guttatus*. A few taken both at San José del Cabo and Todos Santos. Four specimens taken in September, 1923, at the latter place are now nos. 45153-56 in the collection of the Museum of Vertebrate Zoology.

Spizella passerina arizonae. Western Chipping Sparrow. Two adult females, only, were seen and taken at El Valle, about 1500 feet elevation, January 16, 1924, and are now nos. 36655 and 36656 in the Bishop collection.

Spizella atrogularis. Black-chinned Sparrow. I met this sparrow only at El Valle where it was common between January 10 and 30, 1924. An adult female taken January 19 is now no. 36939 in the Bishop collection.

Melospiza lincolnii. Lincoln Sparrow. This I found to be a rare bird. Seen only at El Oro, one February 1 and the other February 5, 1924. These are now nos. 36672 and 36673 in the Bishop collection.

Spiza americana. Dickcissel. Seen once at Todos Santos in October, 1923.

Piranga ludoviciana. Western Tanager. An adult female was taken at San José del Cabo, April 5, 1923, but not seen elsewhere by me, though it has been recorded from Cape San Lucas, La Paz and the Victoria Mountains. The above specimen is now no. 36722 in the Bishop collection.

Progne subis hesperia. Western Martin. Common at San José del Cabo, first appearing in June. They were nesting in holes in palm trees. Near La Paz I found large young in the cavity of a giant cactus, September 10, 1923. An immature female taken at Todos Santos, November 3, 1923, is now no. 36209 in the Bishop collection.

Mniotilta varia. Black-and-white Warbler. This warbler is heretofore known from Lower California by but one specimen, taken at Triunfo, December 20, 1887 (Bull. Mus. Comp. Zool., XLI, p. 178). During the year 1923 I took one specimen, each, at San José del Cabo, February 20, La Paz, September 28, and Todos Santos, November 6. The following year none was seen. The Todos Santos specimen, an adult female, is now no. 36226 in the Bishop collection.

Vermivora celata celata. Orange-crowned Warbler. Belding took a specimen at La Paz in January, 1882, and Frazar one at San José del Cabo, October 17, 1887. I saw this bird but once, at La Paz, October 21, 1923. It is an immature male and is now no. 37482 in the Bishop collection.

Setophaga ruticilla. American Redstart. Several were seen at San José del Cabo in the winter of 1923 and one was seen at Todos Santos, November 8. This constitutes the second notice of the redstart in Lower California, it formerly being known only from a specimen taken by Belding at Miraflores, February 24, 1883. An immature male taken April 10 at San José del Cabo, is now no. 36242 in the Bishop collection.

Salpinctes obsoletus obsoletus. Rock Wren. Rare; met with only at Todos Santos where four or five were seen during November, 1923, and one bird near La Paz, October 15, 1924. A specimen taken at Todos Santos, November 12, is now no. 2421 in the Barnes collection.

Catherpes mexicanus conspersus. Canyon Wren. Seen frequently in the Victoria Mountains, and found commonly on the rocky cliffs of the sea-coast south of La Paz and on Espiritu Santo Island. A juvenile male taken in the Laguna Mountains, July 20, 1923, is now no. 36264 in the Bishop collection.

Museum of Vertebrate Zoology, Berkeley, California, February 25, 1927.

FROM FIELD AND STUDY

Nesting of a Pair of Red-shafted Flickers.—During the winter of 1925 I securely wired into place a dead stub of an alder tree about six feet long and twelve inches through, at a height of fifteen feet in a walnut tree in my back yard here in town. During February and March, 1926, I noticed that a pair of Red-shafted Flickers (*Colaptes cafer collaris*) was continually working on the stump. Chips from the cavity gradually accumulated on the ground under the tree, and by April 1 the cavity seemed ready for eggs. However, it was not until April 21 that I found the first egg in the nest; on April 25 there were six eggs and the bird was sitting. On the morning of May 7 as I tapped the tree the female left the hole and I examined the nest, to find six small young that had seemingly just hatched, as the egg shells were still in the cavity. On May 11 the youngsters were well developed and hissed loudly when I handled them, but their eyes were not as yet open. The parent birds were apparently not brooding them during the day even though their bodies were bare of feathers. They were large enough to band at this time and I placed the following bands on them, nos. 256575, -76, -77, -78, -79, and -80.

On May 15 the eyes of the young flickers were still closed, but they seemed to be just opening on the 16th. At this time the primaries, secondaries and tertiaries were about a quarter of an inch long. The feathers on the dorsal feather tract were just breaking through the skin, and the rectrices were about one-half inch long. Their necks, heads, and under-parts were still bare. The old birds were not about. The young were very noisy, with their grating hissing notes, and seemed strong and healthy, with no parasites in the nest or on them.

I was then away from home for some two weeks in Lower California. When I returned, on June 1, I found the young well able to fly, and they all left the nest on this date.

Thus we note that the adult birds took several weeks at a leisurely pace to build their nesting cavity, even though in a rotten stump; six days to lay their eggs; twelve or thirteen days to hatch them; and that the young stayed in the nest about three weeks. Also that the feather development on the young was very slow at first but speeded up as soon as their bodies were quite large. And also it seems that if we put up suitable nesting sites for this type of bird, it will not be difficult to attract such to our homes. There has been considerable complaint about flickers drilling into the sides of buildings, but if we would give them natural nesting sites it is very probable that they would desist from doing this.

My birds were often seen feeding on the ground in my back yard. Not once did they drum on the house, but used both a tall radio pole next door and their nesting stub for their drumming places. This drumming, which usually took place in the early morning, started in February and was kept up during that month and March. It became less frequent after the eggs were laid, though it was heard at intervals even until the young birds had flown.—WRIGHT M. PIERCE, *Claremont, California, December 10, 1926.*

Additional Records of the Gray Gyrfalcon in Washington.—Since recording a recent specimen of the Gray Gyrfalcon (*Falco rusticolus*) for Washington (Condor, XXVIII, 1926, p. 172), Mr. Stanley Jewett has called my attention to the fact that he had previously reported one from this state (Condor, XXIII, 1921, p. 166), which was really the second state record. In corresponding with Mr. Loew, taxidermist at Colville, Washington, he describes this bird as follows: "Slate color on the back and very light underneath, streaked with brown". He describes another gyrfalcon taken by him in November, 1925, which he has mounted, as "very dark slate color on the back and nearly slate below, with only a few whitish gray markings".

I have also located a fifth specimen, an immature male taken at Chelan, Washington, on December 31, 1925, by Mr. G. L. Richards, a taxidermist of that place. Mr. Richards was formerly state taxidermist at Albany, New York. This makes three records for the fall of 1925, all immature birds. Dr. Walter Koelz of the University of Michigan, Ann Arbor, writes me under date of February 12, 1926, that he has two gyrfalcons taken on the Queen Charlotte Islands that same winter.—J. L. SLOANAKER, *Spokane, Washington, December 12, 1926.*

Some New Birds from Western Montana.—Spotted Owl (*Strix occidentalis*). A single bird of this species was seen on August 10, 1922, six miles south of Canada and ten miles west of Glacier National Park, in a heavily-forested creek bottom in the Canadian zone, at an elevation of 5100 feet. It showed little fear, allowing my brother and me to approach quite closely the tree in which it perched, and to make identification certain. It finally flew noiselessly away through the day-gloom of the dense woods. There seems to be no previous record of this bird from Montana.

Ash-throated Flycatcher (*Myiarchus cinerascens*). On September 4 and 5, 1924, an Ash-throated Flycatcher surprisingly appeared at a forest lookout station where my brother was situated, at the top of a sparsely-timbered Canadian zone peak 6160 feet in elevation, north of Libby, and twenty-five miles south of the Canadian line. The bird remained on the top of the mountain, and hence close to the station, most of the time during these two days, perching quietly and fearlessly on some exposed branch or small tree, and feeding on what insects were available. On the third day it failed to appear. This seems to be the first record of the species from the state.

Say Phoebe (*Sayornis saya*). During the afternoon of July 20, 1924, I observed for several minutes a Say Phoebe in the outskirts of Libby. It alighted on several houses and woodsheds, at each sitting giving a few snatches of its mellow song. This bird is common in much of the plains area of the state, where I became acquainted with it, but has not, I believe, been reported from that third of Montana lying west of the continental divide. Libby is surrounded for many miles by timbered mountains.

Pinyon Jay (*Cyanocephalus cyanocephalus*). On January 11, 1921, a flock of about forty Pinyon Jays flew over the town of Eureka, at the edge of the Transition zone Tobacco Plains. On the same mountain where the Ash-throated Flycatcher was seen, my brother, on August 21, 1924, observed a small flock. There seem to be no previous Montana records from west of the divide.

Chestnut-collared Longspur (*Calcarius ornatus*). Three times, during five years of observation, a single male Chestnut-collared Longspur has been seen in a meadow near Fortine, sixteen miles south of Canada, and fifty-two miles east of Idaho. The dates are: May 20, 1921; May 27 and July 20, 1922. The meadow lies in a mountain valley where the Canadian and Transition zones meet, eight miles from the nearest plains-type land. This longspur, with which I became closely acquainted during two summers on the prairies, has not previously been recorded in Montana west of the eastern base of the Rockies.

White-throated Sparrow (*Zonotrichia albicollis*). This species is now known as a rare migrant, in the eastern part of the state only. At Fortine it is a fairly common fall migrant, and it occurs also at Libby. I have observed it less commonly at Bozeman, east of the divide, where it previously has been recorded once or twice. At Fortine, in 1921, it was commonly observed, by my brother or myself, from September 12 to October 15. In 1922 it was seen every day except three, from August 30 to October 18. In 1923 one appeared September 1, and others were seen every day from September 6 to 16, when I left that locality. In Libby I observed a few September 20. I was not at Fortine in the fall of 1924, but observed the species at Libby from September 14 until I left the locality on September 19. My brother noted the species at Libby September 20, 1925, and September 15, 1926. He was at Fortine only on September 11 and 12, 1926, and saw White-throated Sparrows on both days.

During the first four of these years I went to Bozeman the last week of September, and there saw the species less commonly: October 8, 1921; September 26, 1922; October 1 to 18, nearly every day, and a band of stragglers November 8, 1923; September 23 and 26, October 2 and 24, 1924.

Indigo Bunting (*Passerina cyanea*). During the fall of 1921, I recorded a flight of Indigo Buntings at Fortine, seeing the birds on August 6, 7, 9, 10, 13, 28, 29, and 31, and September 4 and 5. On the first days only a single individual was seen, but several were noted on August 13 and 28, and a flock of fifteen was watched for half an hour on August 31. They were seen about the edges of a grain field bordered by a brushy creek-flat, and along roadsides and pastures. During six years of observation in Montana, including two other autumns in the above-named locality, I have obtained no other records of the species. I believe that it has not previously been reported from the state.—WINTON WEYDEMEYER, *Libby, Montana, December 6, 1926.*

Mid-winter Nesting in Southern California.—On December 24, 1925, I flushed a young Western Meadowlark (*Sturnella neglecta*) from the grass on the shore of Sweetwater Lake, San Diego County, California, whose almost tailless appearance, and the solicitous attention of one of its parents, indicated that it was but recently out of the nest. It could already fly too well for me to catch it, but the presence of young meadowlarks at this unusual date was further proved by Mrs. May Canfield, a member of the San Diego Society of Natural History, who, on December 27, 1925, collected near Mission Gorge, San Diego County, a young meadowlark even less developed than the one I had seen. Perhaps the heavy autumn rains of 1925 induced abnormally early nesting, for specimens of the San Clemente Wren (*Thryomanes bewickii leucophrys*) taken by Laurence M. Huey, of the Natural History Museum, on San Clemente Island, December 12, 1925, showed unmistakable evidence of breeding. As I saw a Green-backed Goldfinch (*Astragalinus psaltria hesperophilus*) feeding her young, still in their nest in a pepper tree at the old San Diego Mission, on October 31, 1925, and as John von Bloeker, Jr., a member of the San Diego Society of Natural History, reported finding the nest of an Anna Hummingbird (*Calypte anna*) containing well-grown young on February 16, 1926, it can truthfully be said that, some seasons at least, nesting is a year-round proposition for the birds in southern California.—CLINTON G. ABBOTT, *Natural History Museum, Balboa Park, San Diego, California, September 21, 1926.*

Additional Breeding Records of the Spotted and Saw-whet Owls in California.[1]—The Spotted Owl (or Northern Spotted Owl, *Strix occidentalis caurina*, if this subspecies continues to be recognized) is extremely rare in Marin County. In the many years passed in that county, on hundreds of nights with the sky, a tree, or a bit of canvas for a roof, I never heard a note that could distinctly be attributed to this owl. Farther north along the coast it becomes more common. At the Bohemian Grove, Sonoma County, in some years its notes occasionally may be distinguished during intervals in the ululant chorus that resounds through the woods of a summer night—after the Bohemians have ceased ululating.

In Mendocino, Humboldt, and Del Norte counties this owl is much more numerous, and seems to be fairly well distributed throughout the coniferous forest association. In fact, it has been heard at practically every camp that I have made in these three counties. It was also noted on the South Fork Mountains, Trinity County, in June, 1926, 45 or 50 miles directly east from the coast. In these camps it was often heard but never seen, even when an individual was barking and whining one night over our heads in a tree by the camp fire. On one occasion Chester Lamb and I made patient but unavailing attempts to "flash" the owl's eyes.

In the various published attempts to describe in words the notes of the spotted owl, the descriptions of the whining and barking notes have been as nearly accurate as might reasonably be expected, but the only description that accurately fits into my experience of its call note, or hoot, is that given in the very interesting account of the habits of the Spotted Owl by J. Stokly Ligon (Auk, XLIII, October, 1926, p. 423). In that paper the call is expressed by *coo—coo-coo——coo-o-o*. Here the proper intervals are clearly shown, the second long interval being nearly twice the length of the first. The only suggestion that I might make in regard to this description is that it has always seemed to me as if the sound were more like *coop*, or possibly *cwoop*, with the last letter barely sounded. This is the call that I have used in imitating the spotted owl, when one was hooting and I could get the proper pitch of its note. It often seemed as if the bird were answering me, but then again, perhaps it wasn't, for my best efforts never brought one into view!

For this state, breeding records of spotted owls are rare, and the published records are confined to the southern half of the state. There is in the Museum of Vertebrate Zoology, University of California, an adult female that was taken in Marin County, May 23 (1896); but this does not constitute a breeding record, as the bird may have been a non-breeder that season. In view of our limited knowledge regarding the nesting of birds of this species in northern California, the following record for Mendocino County should be of interest.

[1] Contribution from the Museum of the California Academy of Sciences.

On July 6, 1924, one of my nephews, with a friend, was fishing in a small stream near the headwaters of Garcia River. As the two fishermen were walking through a gloomy stretch of the narrow, wooded cañon, they saw a fluffy owl on a low limb of a near-by Douglas fir. Upon their approach, the bird left its perch and flew, about six feet above their heads, across the small stream, and landed in another fir on a limb about ten feet from the ground. My nephew threw a stone and hit the owl, injuring one wing so that it could not fly. It was brought alive to San Francisco, and proved to be a female spotted owl, not long out of the nest. The remiges and rectrices are almost fully developed, but otherwise, with the exception of the scapulars and a few feathers on the sides of the breast and around the eyes, the bird is yet in downy plumage. This specimen is now number 26832 in the collection of the Museum of the California Academy of Sciences.

The Saw-whet Owl (*Cryptoglaux acadica acadica*) is supposed to breed locally along the Sierra Nevada, and there are nesting records from this range for central and southern California; but there is no breeding record, to my knowledge, for the northern part of the state west of the Sierras. There is now in the Academy collection, the dried remains of one of these owls, that was brought in on June 18 by Raleigh A. Borell, my field assistant during the spring and summer of 1926. The mummy was picked up by H. Kohenberger, owner of the ranch on which we were encamped, as he was showing the mountain trails to Borell. It was found among the pines on the southwesterly slope of the South Fork Mountains (about ten miles northwest of Forest Glen post office), at a point considerably above our camp, which was at an elevation of about 3100 feet.

Although rather dilapidated, this specimen is in sufficiently good condition to show that it is nearly full sized. The tail is missing, but the wings are intact, and the primaries are about four-fifths grown. There is no sign of white anywhere except for the markings on the wings, and on the head, where the white "eyebrows" are well marked. The specimen is number 29085, Academy collection.—JOSEPH MAILLIARD, *California Academy of Sciences, Golden Gate Park, San Francisco, California, January 11, 1927.*

Pigmy Owl: The Little Demon.—On the morning of May 24 I was up early for my weekly trip to the rim of the valley. I had planned to go up the Ledge Trail to Glacier Point and, on leaving the house, I decided to go by the way of Sentinel Bridge and the south road, hoping to have a visit with the Saw-whet Owl. The young Saw-whet Owl was not at home; or, if he was he was still sleeping, for he did not respond to my knock. I passed on up the road.

I had not traveled a hundred yards when my ear caught the single, hollow whistled note of an owl. The sound seemed to come from directly overhead. Then there came gentle tapping sounds and a subdued trill. While I was gazing up into the branches of a tall Kellogg oak a Willow Woodpecker flashed into my range of vision. My eyes naturally followed the woodpecker which flew to a nest where he fed the occupant without entering the hole. This action would indicate that either the young were well grown, or that the female bird was being fed by her mate. The woodpecker flew away at once and I sat down to await his return that I might learn whether or not young birds were being fed.

I had not long to wait. In less than a minute a strange bird flew to the nest hole. At first I was puzzled; the new arrival appeared to be struggling to get into the hole. Soon, however, I realized that he was tugging violently in an effort to withdraw his head from the hole. The struggle continued. There was no sound. Perhaps a minute passed and then the bird withdrew his head and in his bill he held a woodpecker. With the limp body of his victim he fluttered down to a lower branch. Now, perched on the branch with the victim held in place by strong talons, the Pigmy Owl, as the strange bird proved to be, proceeded to tear away feathers from the throat, apparently to make sure that his victim was dead; for in a moment he flew to another perch, this time carrying the woodpecker in his talons.

Soon he flew a little farther and attempted to gain a toe-hold at the entrance of another woodpecker hole. His burden was too much for him (the woodpecker was almost as large as the owl) and he was forced to flutter down to another perch. Here the owl rested a moment, took a new grip on his victim and flew upward into the cedar boughs opposite the nest hole he had so recently visited. In the cedar boughs he was discovered by a Tolmie Warbler which instantly sounded the alarm. The distress cries

of the Tolmie Warbler attracted a Yellow Warbler, a Robin and a pair of Sierra Juncos. These birds scolded the owl but did not attempt to strike him. The owl apparently gave no heed to his tormentors and soon flew again to the nest-hole in the dead oak. Now, he managed to cling to the rim of the hole and going head first he did contrive to drag the dead woodpecker after him.

Fig. 55. PIGMY OWL IN YOSEMITE VALLEY.

Having had a good look at the victim, I am inclined to believe that it was a young male Willow Woodpecker, full-feathered and about ready to leave the nest. So far as I could tell, the parent woodpecker on returning did not discover his loss, at least he made no outcry. The Pigmy Owl's nest was in a deserted Hairy Woodpecker hole twelve feet above the ground. This hole was drilled and used by a pair of Hairy Woodpeckers last spring.—CHARLES W. MICHAEL, *Yosemite, California, January 31, 1927.*

The Gila Woodpecker at Holtville, Imperial County, California.—On March 21, 1926, I observed a pair of Gila Woodpeckers (*Centurus uropygialis*) about a mile north of Holtville. Both birds were busy, part of the time, carrying black mulberries to fence posts where they thrust them into crevices before eating them. As far as I can learn there is no published record of the occurrence of this species west of the immediate vicinity of the Colorado River.—RALPH HOFFMANN, *Carpinteria, California, January 1, 1927.*

An English Sparrow Deceived.—Much might be written in evidence of the power of sight discrimination in birds, but on November 22, 1923, I saw an English Sparrow make a mistake which was surprising to say the least. On a large billboard, in Ashland, Oregon, there was a picture of a rowboat (advertising a moving picture show), and I saw this sparrow actually attempt to alight on the edge of the boat, evidently not

perceiving the difference between the picture and the real thing. It practically, if not actually, hit the billboard before discovering its mistake, then flew to a nearby perch, a surprised and enlightened bird.—WM. E. SHERWOOD, *Trail, Oregon, February 7, 1927.*

Western Robin Nesting at Napa.—I was very much interested in Mr. Storer's article in the November *Condor* on "Range Extensions by the Western Robin in California", and his accurate deductions as to robins seen at Napa on August 27, 1922. Robins have nested on my two-acre residence in the heart of Napa for at least twelve years. I find entry in my notes of a brood hatching on my place on May 22, 1916. This date agrees with the known dates of nesting in San Francisco.

Mr. Frank A. Leach, a pioneer resident of Napa Valley, and a member of the Cooper Club, tells me that there were no robins in Napa Valley in the old days. The Western Martin, now non-resident, was, however, very common, and nearly every settler put up a box or a keg on a pole as an invitation to nest.—E. L. BICKFORD, *Napa, California, March 17, 1927.*

Most Southerly Breeding Record of Wilson Snipe in California.—My friend the late Judge Edward Wall reported the Wilson Snipe (*Gallinago delicata*) as being a breeding bird of San Bernardino, California (Condor, XXI, 1919, p. 207). I talked with him concerning this record and was told of the pasture where he found the eggs mentioned in the article. While I did not question the identification, I could not understand why I had not, in about thirty years of collecting, found any nests of Wilson Snipe or seen any eggs claimed to have been taken by other collectors in the San Bernardino Valley. I had come to the conclusion that the Wilson Snipe had either stopped nesting here or was a rare and erratic breeding bird. It is thus with considerable pleasure that I am now able to confirm the report that the Wilson Snipe does nest in the San Bernardino Valley.

My friend, Mr. George M. Archibald, a well known hunter of Colton, flushed a Wilson Snipe while walking across a damp pasture in East Colton on April 26, 1926. After a short search he found the nest, containing three eggs, in the deep grass. The pasture was similar to the one where Judge Wall did his collecting, and, as it is several miles farther south, this set must now be considered as providing the most southerly breeding record for the Wilson Snipe in California. I found these eggs to be fresh, and it is possible that the set was not complete. They are typical and the weights in grams were 15.40, 15.13, and 15.00. The set is now no. 2370 in my oological collection. —WILSON C. HANNA, *Colton, California, January 20, 1927.*

The Ancient Murrelet at San Diego, with a Note on the Behavior of Brown Pelicans. —Since the only reference I can find of the Ancient Murrelet (*Synthliboramphus antiquus*) in the vicinity of San Diego is that of a dead bird washed up at Pacific Beach on April 25, 1904 (Bishop, Condor, VII, 1905, p. 141), it may be well to record that on the morning of November 11, 1926, I secured three of these birds, which are now in the collection of the San Diego Society of Natural History. They were taken at sea a short distance from Point Loma.

At the time, the ocean was calm and immense schools of young smelts, evidently driven to the surface by larger fish that were feeding upon them, were attracting a great number of birds, both in the air and on the water in the immediate vicinity. Upon investigation, I found California Brown Pelicans, Western, California and Heermann gulls, Black-vented Shearwaters, and Brandt and Farallon cormorants, all in a wild scramble feeding upon the fish as they neared the surface or broke water. So intent were the birds upon their feeding, that I was able to drive my boat in among the crowd until the wash from the bow would heave them to one side before they would fly.

The most interesting feature of the situation was the action of the California Brown Pelicans (*Pelecanus californicus*) in safeguarding their catch from the Heermann Gulls (*Larus heermanni*). The gulls and shearwaters seemed to be the only birds that deliberately took advantage of the better fishing equipment of the pelicans. When a half dozen pelicans had their pouches full of fish, they would form a close

circle, with their heads almost touching in the center. The gulls and shearwaters, with excited cries and much flapping of wings, would fly over, crawl over and dive under the stolid pelicans. Whenever a pelican wished to swallow his catch, he would suddenly stick his head under water, leaving only the afterpart of his body and legs above the surface, and would, apparently, swallow the fish in that position. The moment a pelican upended, the excitement among the other birds doubled and trebled, while they fought among themselves to get the fish that evidently slipped from the pelican's pouch the moment he opened his bill. The pelicans, however, seemed able to retain the bulk of their catch, for, after a while, apparently satisfied, they would rise slowly and go to fishing again. When they had collected another pouch full, the same performance would be repeated. The whole thing was most amusing, and the excitement of the birds was so great that I was able to lie within fifteen or twenty feet of them during the entire performance.—J. W. SEFTON, JR., *San Diego Society of Natural History, Balboa Park, San Diego, California, January 21, 1927.*

Valley Quail Imported from Chile.—Perhaps no other American game bird has been so successfully acclimatized in other countries as has the California Valley Quail (*Lophortyx californica*). For many years it has been known that this bird had been successfully introduced in such remote regions as British Columbia, Chile, and New Zealand, and now there has come to hand some interesting information as to the magnitude of the success attained in one of these places. Mr. F. E. Booth, of San Francisco, while on a visit to Santiago, Chile, noted Valley Quail for sale in the market there. On inquiry he learned that they were abundant enough to be obtained in quantity, and as a consequence he has begun the importation of stock from Chile for introduction into coverts on a game preserve in Sonoma County. The first shipment arrived during the early part of January, 1927, consisting of 134 birds, which reached their destination in good condition. Thus, depleted game coverts in California are being re-stocked with Chilean-raised California Quail.

Mr. Booth's importation of birds received newspaper publicity, and as an outcome of this there resulted some information regarding the early exportation of quail from California to Chile that seems worth placing upon record. The newspaper item was seen by Mr. E. F. Greenwood, of San Francisco, who wrote to me, giving information substantially as follows:

"My wife, a Chilean, is a grand-daughter of one William Govers, formerly of California and before that of Holland, who had a ranch near San Jose. He decided to migrate to Chile about 1864. Being a thrifty Hollander he took many things with him, including a brace of quail which he had captured on his ranch. When he arrived in Chile there were no quail in that country, and his birds, exhibited in a store window, were quite a novelty. He bought a ranch at Limache, near Valparaiso, and had his birds there for some time. Then, while feeding them one day, their cage tipped over and they escaped. This is the reason for the abundance of quail in Chile."

A second letter, from Mr. Henry J. Besant, Sonora, California, received by one of the daily papers and forwarded to me, reads thus: "I was in Chile with Mr. C. J. Lambert, who had a copper mine and smelter at La Compania, near Serena, Province of Coquimbo. In the park in which he had his residence at La Compania he released a lot of quail which he had had sent down from San Francisco. The climate and other conditions evidently being favorable, they increased in numbers rapidly and spread out over the country. I cannot now remember the exact date when this was done, but I think it must have been in 1881 or 1882."

It is possible, of course, that these were not the only importations of quail into Chile, but here, at any rate, is definite information as to the exact subspecies first introduced there, information to be taken into account in any study of the characters now exhibited by Chilean Valley Quail.—H. S. SWARTH, *Museum of Vertebrate Zoology, Berkeley, California, February 9, 1927.*

Status of the Yellow-legs in Arizona.[1]—Recently, while occupied with the preparation of the distribution and migration sections for A. C. Bent's forthcoming volume on the Life Histories of North American Shorebirds, I was surprised to learn that there was available no authentic published record of the occurrence of the Yellow-legs (*Totanus flavipes*) in the State of Arizona.

[1] Published by permission of the Secretary of the Smithsonian Institution.

In his "Distributional List of the Birds of Arizona" (Pacific Coast Avifauna no. 10, 1914) Swarth denies this species a place in the regular list, although admitting it to the hypothetical list (p. 83) because of the published statement of Visher (Auk, XXVII, 1910, p. 280) that it was "tolerably common on a pond near Tucson early in September." As Mr. Swarth rightly says of this record: "In the absence of specimens it may be questioned."

Specimen evidence, however, is available in the collections made by Dr. E. A. Mearns in connection with the Mexican Boundary Survey, and which are now in the U. S. National Museum. It is a matter for regret that publication of the ornithological results of this Survey has been so long delayed. The field catalogue of Dr. Mearns contains the records of a series of 19 specimens of this species, collected at the San Bernardino Ranch near Monument no. 77, in southeastern Arizona, between August 2 and 29, 1892. I have located and examined 17 of these specimens in the National Museum collection. The distribution by date and sex is as follows: August 2, two females (one marked as immature); August 18, one male, two females; August 19, two males; August 21, six males, one female, one, sex undetermined; August 27, one male, two females; August 29, one male. During the same season in 1893 Dr. Mearns again worked at this station, but the Yellow-legs was not recorded in his catalogue.

Curiously enough, these specimens were overlooked by Prof. W. W. Cooke, when he prepared his supplementary list of Arizona birds, which appeared in the *Auk* for July, 1914 (pp. 403-404). Although more than thirty-four years have elapsed since the collection of this material, it would seem reasonable to assume that in eastern Arizona (or possibly only in the southeastern part) the Yellow-legs may be a fairly regular migrant, particularly in the fall.—FREDERICK C. LINCOLN, *Biological Survey, Washington, D. C., February 14, 1927.*

Western Bluebird Nesting in the City of San Diego.—A nest of the Western Bluebird (*Sialia mexicana occidentalis*) found during the past summer in Balboa Park, San Diego, is of interest, both as the southernmost nesting record on the sea-coast for this bird, and also on account of the unusual nesting site. Probably because they could find no suitable natural cavity in the trees of San Diego's well-pruned park, and because, for lack of suitable tenants, bird boxes are scarce, the birds occupied an empty Cliff Swallow's nest. In fact, they were obliging enough to select one under the eaves of the Natural History Museum, between the two windows of the Director's office. But so secretive were they in their affairs that their presence was not suspected until there were well grown and noisy young in the nest. This was on July 10, 1926; two days later the young were out of the nest.

Other evidence that Western Bluebirds have nested in Balboa Park is offered by a specimen in the spotted juvenile plumage that was found dead by the writer on the West Driveway, July 29, 1922; and by the observation of Carroll DeWilton Scott, a member of the San Diego Society of Natural History, who, on June 3, 1926, saw both parents feeding well-fledged young on the lawn at Eighth and Date streets.

It cannot be said that the above mentioned nest is the first Western Bluebird's nest to be found in the city of San Diego, for Laurence M. Huey, now a member of the Natural History Museum staff, has in his collection a set of four eggs of this species, taken from a woodpecker hole in a sycamore limb in Rose Canyon on June 4, 1915. The locality is about four miles from the ocean and, although completely rural, is within the corporate limits of the city.—CLINTON G. ABBOTT, *Natural History Museum, Balboa Park, San Diego, California, September 21, 1926.*

The Lewis Woodpecker Apparently Nesting at Gustine, Merced County, California.—On April 23, 1926, I found a pair of Lewis Woodpeckers (*Asyndesmus lewisi*) entering a hole about forty feet up in a cottonwood at Gustine. On July 30, 1924, I saw an immature bird in the same region. The elevation of Gustine is only 104 feet above the sea, and there are neither oaks nor pines in the region where the birds apparently breed.—RALPH HOFFMANN, *Carpinteria, California, January 1, 1927.*

The Rock Wren of San Nicolas Island Not a Recognizable Subspecies.—In the *Auk* (XV, 1898, p. 237), I named a supposedly new race of Rock Wren, *Salpinctes obsoletus pulverius*, with type from San Nicolas Island, California. This island is situated more

distantly from the mainland than any other of the Santa Barbara group of islands, and it was natural to expect that any non-migratory land bird found there would show results of this sequestration, especially inasmuch as certain other birds on islands closer to the mainland do so plainly.

The characters that I thought I saw in the San Nicolas Rock Wren justifying my naming it as new were, as compared with mainland birds, larger bill and feet, and paler, more "dusty", coloration. But the birds I had from the island were all taken in May, and the adults were badly faded and abraded; furthermore the plumage (and I have part of my original series before me now) proves to have been adventitiously stained, probably by the clayey earth of the gully-walls within the cracks of which the birds lived (see Grinnell, Pasadena Acad. Sci., Publ. No. 1, 1897, p. 10). The difference in color between those San Nicolas wrens and mainland birds was, and is, striking; but I now believe it to be entirely extrinsic.

As to size of bill and feet, there probably is some slight difference; but most of what I claimed for the bill proves to be non-intrinsic. Apparent length of culmen, as well as thickness at base, is, in many kinds of birds, now well known to increase with wear: the feathers about the base of the bill, especially those on the forehead, shorten, even retreat in a sense, thus "exposing" more of the bill for measurement by the calipers.

My suspicions as to the tenability of *"pulverius"* began long ago and have been getting stronger of late years; but their climax was capped as a result of studies I have been making lately of Rock Wrens from Lower California. In doing this, I examined all the material, in several large museums, from throughout the range of *Salpinctes obsoletus*. And in the John E. Thayer collection, on October 7, last, I came across a series of Rock Wrens from San Nicolas Island, taken several years after I was there, in the fall soon after completion of the one annual molt. Close scrutiny of these failed to disclose a single tangible distinguishing character.

Historically, *S. o. pulverius*, after its publication in the *Auk*, was quickly adopted in current literature. Ridgway gave it full place in his "Part III". It was "accepted" by the A. O. U. Committee, after some hesitancy, it is true, in the 1910 edition of its Check-list; and so on. The first author to question its validity was Willett (Pacific Coast Avif. No. 7, 1912, p. 101). Howell, in his review of the island bird-life (Pacific Coast Avif. No. 12, 1917, p. 96) accepted it, but with pronounced reservation, following Swarth (Condor, XVI, 1914, p. 213) who had found no ground at all for the color characters claimed for it, but still saw a little bill difference, enough to justify him in continuing the name. Any difference there may be in this latter regard is so slight and unstable (as shown by Swarth's measurements), especially when the range of bill-length in a large series of continental birds is considered, that I am unable now to see any practical value in it. I am thus compelled to accede, in this instance, to the justness of Dawson's animadversions (Birds of Calif., 1923, p. 683)!

This case is not alone in illustrating how difficult it is to quash a "subspecies", once it gets into printed lists. To summarize, the name *Salpinctes obsoletus pulverius* was based on characters of an adventitious nature, not phylogenetic ones. I counsel that the A. O. U. Committee drop the name from their manuscript under compilation for the new official Check-list. Another bird name goes into synonymy, the necropolis for mistakes in systematics.—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, March 13, 1927.*

A Woodpecker Destructive to Cacao Fruit.—The name *Celeus castaneus* is applied to a very elegant woodpecker, in color a prevailing chocolate brown, with a flowing buff-brown crest, and of medium size. It inhabits a considerable part of the Caribbean lowlands of Central America. If the scant records published pertaining to it can serve as indication, it could have been nowhere common in Costa Rica subsequent to the extended cultivation of cacao. Today even, it is rarely met where there is no cultivation of this tree. But wherever plantations are now existing, it is to be found in abundance, and it is an acknowledged nuisance.

This is a very quiet species, not at all shy, and if surprised when feeding on the fruit which, by the way, grows on the trunk and larger limbs only, it will quickly ascend to the leafy terminal branches. Preferring the fruit when yet quite green, it finds no trouble in drilling the soft covering. Usually, only a few of the many seeds are extracted, and from these the mucilaginous covering only is eaten. Thereafter,

these openings are often used to advantage, and enlarged, by squirrels. Later, as the fruit that remains ripens and rots, it is feasted upon by many insects, among them the lovely owl butterflies (*Caligo* sp.) greatly relishing the now sweet pulp.—AUSTIN SMITH, *San José, Costa Rica, September 7, 1926.*

An American Hawk Owl Record for Vancouver Island.—In January, 1926, I found in the shop of C. W. Tow, taxidermist, Victoria, B. C., an American Hawk Owl (*Surnia ulula caparoch*) shot by D. Irwin in the act of killing a European Partridge at Cedar Hill, near Victoria, B. C., December 29, 1925.—G. D. SPROT, *Cobble Hill, Vancouver Isand, B. C., January 24, 1927.*

A Pacific Coast Race of the Yellow-crowned Night Heron.—In studying the collections made in the interests of the San Diego Society of Natural History on a short trip to Scammon Lagoon, on the west coast of central Lower California, Mexico, during May, 1926, it was found that the specimens of Yellow-crowned Night Herons show characters that seem worthy of subspecific recognition. A new race is therefore proposed, with the following name:

Nyctanassa violacea bancrofti,[1] subsp. nov. Bancroft Yellow-crowned Night Heron

Type.—Breeding male; no. 10654, collection of the San Diego Society of Natural History; collected at Scammon Lagoon, Lower California, Mexico, by Laurence M. Huey, skinned by George G. Cantwell, on May 25, 1926.

Subspecific characters.—Similar to *Nyctanassa violacea violacea* (Linnaeus), but larger, and with a heavier, longer bill in both vertical and lateral profiles.

Range.—The Pacific coast of Lower California from Scammon Lagoon south, the Gulf of California as far north as the San Luis Islands, and thence south along the Pacific coast of Mexico and Central America at least to Salvador.

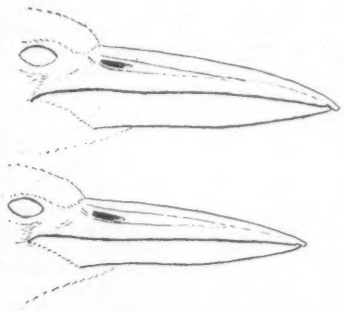

Fig. 56. BILLS OF YELLOW-CROWNED NIGHT HERONS. ×½.
a. Type of *Nyctanassa violacea bancrofti.*
b. *Nyctanassa violacea violacea*, ♂ ad.; no. 225341, Mus. Comp. Zool.; Broro Neck, Georgia.

Remarks.—The four Scammon Lagoon birds have the edgings of the inter-scapulars clear ashy with no trace of brownish, such as is present in all of the apparently adult eastern birds examined. However, the writer is not prepared to attach any significance to this at present. Two birds from Salvador in the collection of Mr. Donald R. Dickey are not typical of the new race, but are very much closer to it in bill characters than to *violacea* of the southeastern United States.

Measurements.—Averages and extremes: Adult male, breeding, 3 specimens, including type: wing, 298.0 (297.0-299.0); tail, 114.6 (112.0-117.0); exposed culmen, 77.6 (76.0-80.0); depth of bill at base, 24.8 (23.2-26.4); tarsus, 98.6 (96.2-100.2); middle toe, minus claw, 63.9 (63.0-65.8); width of bill at base, 21.0 (20.3-21.6). Adult female, breeding, 1 specimen: wing, 287.0; tail, 115.0; exposed culmen, 74.6; depth of bill at base, 24.2; tarsus, 100.0; middle toe, minus claw, 61.0; width of bill at base, 21.0.

Specimens examined.—*Nyctanassa violacea violacea*, Suwanee River, Florida, 4[2]; Key West, Florida, 3[2]; Broro Neck, Georgia, 1[2]. *Nyctanassa violacea bancrofti*, Lake Olomega, Salvador, 2[3]; Scammon Lagoon, Lower California, Mexico, 4[4]; San Benito Islands, Lower California, Mexico, 1[4].

[1] Named for Griffing Bancroft, of the San Diego Society of Natural History, who organized the trip on which the specimens were collected.
[2] Specimens from the Museum of Comparative Zoology.
[3] Specimens from the Collection of Donald R. Dickey.
[4] Specimens from the Collection of the San Diego Society of Natural History.

Acknowledgments.—The writer wishes to express his appreciation to Messrs. Outram Bangs of the Museum of Comparative Zoology and Donald R. Dickey for use of material in their collections, and to Mr. Adriaan J. van Rossem for helpful criticisms and for the line drawing of bills published herewith.—LAURENCE M. HUEY, *Natural History Museum, Balboa Park, San Diego, California, February 23, 1927.*

A New Race of Gila Woodpecker from Lower California.—When specimens of the Gila Woodpecker collected by Chester C. Lamb in May, 1926, at the eastern base of the Sierra San Pedro Martir reached the Museum of Vertebrate Zoology and were compared with our series of the species from the lower Colorado River valley, outstanding differences were at once apparent. In visiting the Carnegie Museum last autumn, I found in the A. W. Anthony collection there, three examples that showed the same characters. And now others of similar features are available, from various localities in the upper waist of the Lower California peninsula, so that there is no question but that a definite area is occupied by a definable new subspecies differing from *Centurus uropygialis uropygialis* Baird to the northward and from *C. u. brewsteri* Ridgway to the southward. (See Ridgway, Birds N. and Mid. Amer., Part VI, 1914, pp. 93-97.)

At the outset, I hasten to acknowledge borrowings of pertinent material from several sources: from the Carnegie Museum, through W. E. Clyde Todd; from the California Academy of Sciences, through Harry S. Swarth; from the San Diego Society of Natural History, through Clinton G. Abbott; and from the private collection of Laurence M. Huey. I am particularly indebted to Mr. Huey for presenting outright to the Museum of Vertebrate Zoology the specimen of his which, because least worn and least soiled by cactus sap, as well as because of its beautiful make, I preferred to choose as a type. The new subspecies may be called

Centurus uropygialis cardonensis. San Fernando Gila Woodpecker

Type.—No. 50529, Mus. Vert. Zool.; male, "breeding"; mouth of Cañon San Juan de Dios, within ten miles east of El Rosario, near latitude 30°, Baja California; collected by Mrs. May Canfield, May 2, 1925; orig. no. 2975, coll. Laurence M. Huey.

Diagnosis.—In its main characters similar to *Centurus uropygialis uropygialis*, but general coloration much darker: whole head (except for red patch on crown) and anterior lower surface strongly tinged with snuff brown rather than pale drab; and white barring on closed wings, tail, dorsum, rump, flanks, and lower tail coverts, narrower, leaving the black-barring correspondingly broader. Similar to *C. u. brewsteri*, but size larger, and coloration darker, in the same respects though not to quite so great a degree as shown in comparison with *uropygialis*. In other words, the new form differs from both the previously known races in the deeper brown tinge of the head and lower surface and in the greater degree of predominance of black over white in the barring.

Measurements.—Of type of *cardonensis*: Wing, 133.0 mm.; tail, 80.5; exposed culmen, 31.1; bill from nostril, 25.9; depth of bill at nostrils, 7.8; tarsus, 24.0; outer anterior toe, 19.7. Compare with table of Ridgway (*loc. cit.*, p. 94). The widths of the white bars on the inner webs of the outer rectrices in the type of *cardonensis* average 2.3 mm.; in an example of *uropygialis*, 4.0; in an example of *brewsteri*, 2.9.

Range.—So far as now known, only the giant cactus (cardon) association in the northern section of the Lower Californian peninsula, from about latitude 30° to latitude 31°. Life-zone, Lower Sonoran. Specimens representing unequivocally this race come from the following localities: San Fernando, 4; the type locality, 1; three miles east of San Quintin, 1; El Cajon Cañon, 3200 feet altitude, east base of Sierra San Pedro Martir, 4; San Felipe (latitude 31°, on the Gulf), 1. To the northward, the nearest locality represented by Gila Woodpeckers is El Major, near latitude 32° 10′, in the Colorado delta; these are good *uropygialis*. To the southward, beyond a considerable gap doubtless inhabited by Gila Woodpeckers but from which I have seen no specimens, comes a series of good *brewsteri* from Santa Margarita Island, latitude 24° 30′. Intergradation between *cardonensis* and *brewsteri* must take place somewhere along between 26° and 30° latitude. Of *brewsteri*, I have before me 31 skins; of *uropygialis*, 44 skins.

Remarks.—The only previous published ascription known to me, of the Gila Woodpecker to the territory here included definitely within the range of *cardonensis* is by A. W. Anthony (Auk, XII, April, 1895, pp. 138-139, under the name *Melanerpes uropygialis*), from San Fernando. He says, after statements as to its local habitat: "My

skins [doubtless the three before me at this writing] from this region show the San Fernando bird to be rather smaller than those from Arizona, with the white markings of the wings and upper parts somewhat restricted. It may seem desirable to separate them as a subspecies, but with the series at present available, I do not consider it advisable." The present findings corroborate Anthony's suggestions, save that I am unable to see any difference in size in the materials now compared, as between *cardonensis* and *uropygialis*. Ridgway (*loc. cit.*, pp. 95, 96) cites Anthony's locality, San Fernando, and the reference, under the heading *Centurus uropygialis uropygialis*, but without further comment.

The races of the Gila Woodpecker now to be recognized are as follows, listing them from north to south:

1. *Centurus uropygialis uropygialis* Baird. Arizona Gila Woodpecker.
2. *Centurus uropygialis cardonensis* Grinnell. San Fernando Gila Woodpecker.
3. *Centurus uropygialis brewsteri* Ridgway. San Lucas Gila Woodpecker.

—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, March 27, 1927.*

Birds of the Atlin Region, British Columbia: A Reply to Criticism.—In the March, 1927, issue of THE CONDOR (XXIX, pp. 112-114) Major Allan Brooks subjects me to rather severe criticism regarding sins of omission and commission in my "Report on a collection of birds and mammals from the Atlin region, northern British Columbia" (Univ. Calif. Publ. Zool., vol. 30, no. 4, 1926). Major Brooks and I spent some pleasant months together engaged in the field work upon which that report is based, and devoted time and energy to discussion of the problems involved. As may be inferred, we did not always agree. Verbal arguments may become extremely heated without at all affecting the pleasant relations of the speakers, while the same arguments in print may convey a false impression of the feelings of the debaters. I wish, therefore, at the outset to disclaim any personal animus in the following reply, and to express my appreciation of the generous compliments contained in the first paragraph of Major Brooks' article. As regards the need of a reply it has been suggested to me that silence on my part would be misconstrued, and that it is desirable that I explain why I still adhere, as I do, to the convictions previously expressed.

First, though, when, as in the present case, there is assertion and repeated implication of forgetfulness and carelessness on my part, I may be permitted to examine into the qualifications of my critic to judge in such matters. Let us look at some of the statements he makes. Under *Dendragapus obscurus fleming*i (p. 113), allusion is made to "Swarth's Teslin Lake bird." I collected no Fleming Grouse at Teslin Lake, nor did I say that I did. Under *Bubo virginianus* (p. 114) is the following: "Swarth's citation of the specimens collected should have said young male and female instead of adult male and female taken July 3. These were a brood of two that I took with one parent." My citation of specimens collected includes this statement: "an adult male, and male and female in post-juvenal molt, July 3" (Swarth, *loc. cit.*, p. 113). On the next page explanation is made that these are of one family. What is there to complain of in this, and how can Brooks' criticism be explained other than as the result of careless reading of what I wrote? Under the circumstances I am satisfied to believe that in memory and carefulness I am at least equal to my critic.

Now as regards the status of certain disputed forms. Of the Horned Owls, Major Brooks is speaking from memory. He has not examined the birds since he saw them when they were shot. I have had the advantage of comparing them with other series. I may say here, that while it is due to his generosity that I secured these owls, he himself was so little interested in preparing any as specimens that in some cases he left the owl in the woods where it was shot, to be retrieved by me later. With no claim to originality I can but repeat a statement that I have heard, that it is extraordinary the lack of interest that is frequently shown in the larger birds!

As to the Goshawk, I do not understand Brooks' position. There is implied recognition of a northwestern race in his statement, and explicit recognition of such in a previous article (Condor, XXVIII, 1926, p. 79), which, in general, is my own view. If there are mistakes in nomenclature, as Brooks claims (*loc. cit.*), they should, of course, be corrected by whomever knows the facts. The specimen I shot and described is as I described it.

As regards the Harlan Hawk, it seems that we differ in our view of this hawk largely because of our individually varying "memories", and, as indicated above, I am not convinced that I should forsake what my own memory tells me, especially as my written note book (my main reliance) is in accord with my remembrance of conditions. Brooks' statement that his adult specimen is "a very pale bird" is too astounding for further reply than this, that my original rough notes on the birds he left in my hands contains the following comment upon this skin: "Breast white, due to exposure of white bases of worn, black-tipped body-feathers. Plumage generally very worn. New body plumage is very dark (sooty)."

Finally, as regards *Lagopus*, *Astur*, *Buteo* and *Bubo*, I submit that my critic has not made his position clear. He criticizes my own disposition of these several birds but offers no alternatives. Concede, if need be, that I am entirely wrong, as is asserted. Then, in each case, what *is* the proper course to pursue?

Of the Scaups and Golden-eyes, I admit that, with such experience as I have had with these ducks, I am ordinarily unable to differentiate on sight between Greater and Lesser scaups, and (in the female and immature plumages) between the two Golden-eyes. In my own publications I would generally treat determination of all such birds seen in a region as dependent upon the identity of specimens collected.—H. S. SWARTH, *California Academy of Sciences, San Francisco, March 17, 1927.*

Rare Hybrid Goose Taken in Washington State.—While hunting geese back of Roosevelt, Klickitat County, Washington, on November 15, 1925, Mr. Jos. F. Coleman of Bickleton, a member of the Klickitat County Game Commission, shot an unusual goose which he gave to the writer to have mounted. After Wither Brothers, taxidermists of Spokane, had completed the work of mounting this bird I permitted Mr. J. L. Sloanaker of Spokane to ship it to the Museum of the University of California, Berkeley, California, for identification. Mr. H. S. Swarth of the said Museum later wrote to Mr. Sloanaker concerning this goose as follows:

> I cannot help you much in regard to the goose. It is about the same size as the Hutchins Goose and looks as though it might possibly be a hybrid between that bird and the Black Brant. Whether it actually is the result of such a cross I can't say. It is apparently a young bird.

When the mounted goose had been returned to Spokane from Berkeley I submitted the specimen to the head office of the Bureau of Biological Survey in Washington, D. C., for identification, and after such identification, upon the request of the Biological Survey, the goose was donated to that institution for its collection. An official of the Bureau of Biological Survey wrote to me concerning the goose as follows:

> The following is a scientific description of the hybrid goose which was transmitted by you to the Bureau for identification. The bird is apparently a hybrid between the Black Brant (*Branta nigricans*) and Hutchins Goose (*Branta canadensis hutchinsi*).
>
> Top of head, lores, and neck all around brownish black; back and scapulars fuscous, some of the feathers with dark centers and most of them with pale edgings; lower rump, and shorter tail-coverts chaetura black; longer and outer tail-coverts white, slightly flecked with brownish, forming a V-shaped white bar at the base of the tail; wing quills (except the base of the primaries), together with secondary wing coverts (except the upper greater coverts and primary coverts), chaetura drab, edged with light fuscous; bases of primaries, outer greater coverts and primary coverts dull, deep neutral gray; large patch on the side of the head, between drab and hair brown, anteriorly washed with buff; anterior portion of the lores and the region about the eye flecked with grayish white, forming almost a complete eye ring; center of chin and of throat brownish black, like the crown, but rather duller and lighter; breast and sides of body dull hair brown, spotted with dark hair brown, in some places inclining to fuscous, particularly on the sides of the body; abdomen brownish white; crissum pure white, anterior portion of thighs brownish white, the posterior portion hair brown.

This hybrid goose was shot by Mr. Coleman from out of a flock of about seventy-five wild geese flying over him. One other member of this same large flock, shot at the same time as Mr. Coleman's hybrid goose, proved to be a Hutchins Goose (*Branta canadensis hutchinsi*) and the remainder of the flock were taken to be of the same kind. The Hutchins Geese are very common and are to be found in large numbers at certain seasons of the year on the Columbia River islands in the region of Roosevelt, Washington.

Letters of inquiry concerning this specimen of hybrid goose have been received by me from Dr. Walter P. Taylor, biologist, Tucson, Arizona, and from Mr. J. D. Figgins, Director of the Colorado Museum of Natural History, Denver, Colorado, and the mount created considerable interest while it remained in my office at Spokane.—WEBSTER H. RANSOM, *Spokane, Washington, December 18, 1926.*

Feeding Habits of Lewis Woodpecker.—On June 16, 1923, while collecting near Imnaha, Wallowa County, Oregon, I frightened a Lewis Woodpecker from the top of a fence post where it was evidently having a feast. On top of the post it had left a fresh egg, probably its own; for it was absolutely fresh, of the right size, and unmarked. The shell had been broken into, but the contents not yet extracted.

In a knothole on the side of the post was an eggshell (of the same kind), and a snail shell which had been broken into. Wedged into the cracks of the post were several insects (some of them still alive) of the two species commonly known as "salmon flies" and "trout flies". On the ground at the foot of the post were several snail shells, a green prune (picked into), and several cherry seeds with stems attached. The nearest source of cherries was almost half a mile away.—WM. E. SHERWOOD, *Trail, Oregon, February 7, 1927.*

Cassiar Junco Wintering in Southern Santa Barbara County, California.—On January 27, 1927, I collected a male Cassiar Junco (*Junco hyemalis connectens*) in Carpinteria, California. The identification has been confirmed by Mr. H. S. Swarth. The bird was feeding in a walnut orchard in company with a small flock of Sierra Juncos (*J. oreganus thurberi*). The only published record of this subspecies in California, that I know of, is of a specimen taken by Major Brooks near Colusa, in March, 1923 (Condor, XXV, 1923, p. 175).—RALPH HOFFMANN, *Carpinteria, California, February 10, 1927.*

Elegant Terns at San Diego.—As the Elegant Tern (*Sterna elegans*), which nests below the Mexican line, has been regarded as a rather rare visitant to the coast of southern California, it may be of interest to note that this species occurred in considerable numbers off San Diego County during last fall. Birds which were unquestionably Elegant Terns arrived in the beginning of August at La Jolla, and could be seen there by the score, flying over the water or fishing. On August 15, I swam out a short distance from the bathing beach in "The Cove" at La Jolla, and some of the Elegant Terns flew over my head, offering a fairly close view. They uttered a rather loud cadent trill, suggesting more the *tee ar-r-r-r* of the Common Tern than the squawking cry of the Royal Tern. Later, J. W. Sefton, Jr., President of the San Diego Society of Natural History, collected several specimens of these exceptionally beautiful birds for the Society. All were taken from a motor boat, off Point Loma, as follows: September 5, three; September 12, four; September 19, one. The sexes were about equally divided.—CLINTON G. ABBOTT, *Natural History Museum, Balboa Park, San Diego, California, December 20, 1926.*

The Fly-catching Habits of the Anna Hummingbird.—On the morning of Thanksgiving Day, November 25, 1926, in Balboa Park, San Diego, California, I watched three male Anna Hummingbirds (*Calypte anna*) catching insects on the wing. A rain the night before had cleared the air and I could easily see the sun glistening on the gossamer wings of a host of tiny midges flying all about me in the air. The male hummers would hang on rapidly vibrating wings for a second and then dart suddenly a short distance and one of the glistening insects would disappear. This was repeated time and time again, and the birds seldom missed; on the rare occasions when they did miss they relentlessly pursued their chosen prey until it was captured. The birds were resplendent in full plumage, were seen at close range, and unmistakable.

In February of this year I saw a female *Calypte anna* sitting on the wire fence just outside of my window in the O'Rourke Zoological Institute, San Diego. While I was watching, she made several short forays after small gnats that were fluttering about the window. After each capture she would return to her perch on the fence.—FRANK F. GANDER, *East San Diego, California, March 30, 1927.*

EDITORIAL NOTES AND NEWS

A recent number of the *Museum Graphic*, house organ of the Los Angeles Museum, contains an article by Mr. L. E. Wyman entitled "Side-lights on the 'Mouse Invasion'". In unusually clear and forceful wording, Mr. Wyman enunciates a principle far too seldom recognized, or, if perceived at all, then ignored. He says: "In this Buena Vista Lake region, as in all California, hawks and owls have been killed almost to extermination, with practically no interference by the officials whose duty it is to enforce laws provided for the protection of such birds; while the four-footed mouse-eaters, as coyotes, skunks and badgers, are as systematically persecuted. Had these control factors existed in their natural numbers, the increase of mice would have brought them to the spot in thousands, and the plague would have been nipped at its inception. Once out of bounds, the pitiful remnants of the mouse-eating forces could serve only as mere onlookers at a spectacle which well illustrates the folly of man in tampering with Nature's well organized machine."

The frequent action of THE CONDOR Editor, in returning local bird lists to authors, is in many cases made necessary solely on account of lack of funds for printing. We, ourselves, are convinced of the value of good local lists; we think they ought to be published, and we do publish them just as often as we dare, in the face of the majority expression of our readers that other types of articles are more acceptable. We hope that with the growth in our facilities for printing we can publish more and more good local bird lists. As to what comprises *good*ness, we recall a most excellent article on the subject by Mr. W. E. Clyde Todd (Osprey, IV, 1900, pages 87-89). Residence for a considerable series of years in one locality is, of course, a prerequisite. Then there are such necessary adjuncts as extreme care in making identifications, down to the subspecies, analysis of floral environment, and many others which Mr. Todd so clearly sets forth.

The following incident comes to us, vouched for by Major E. S. Luce, U. S. A. On October 1, last, Mr. Edison L. Mouton, a regular Air Mail Pilot on the transcontinental route, was coming into Elko, Nevada, from Reno. "When about a mile from the landing field and about 1200 feet above the ground", writes Mr. Mouton, "I throttled the motor about half and nosed the plane down in a gentle glide toward the field. I was looking out over the left side of the plane watching to see if there be any planes taking off or landing under me, when there was a shock. I looked over to the right side of the plane, to see the front middle strut knocked back along the lower wing and an eagle hung up in the stager wires. This let the lower edge of the lower wing belly up in the middle, giving the wing a great deal more incidence and resultant lift. . . . I finally made the field all right. . . . The eagle was of the Golden variety and measured 8 feet from tip to tip. . . . After landing at Elko the mechanics on the field called my attention to another eagle flying around a short distance from where I had hit the other a moment before. There was evidently a pair of the birds."

BIRD HAVEN

California ornithologists have been asked to contribute $5,000 toward the fund of $35,000 necessary adequately to endow Robert Ridgway's Olney, Illinois, acreage as a permanent bird sanctuary and as a perpetual monument to Mr. Ridgway. Only a fifth of our allotted amount has been pledged, and not all of this has yet been paid in. That there is justifiable hope of attaining the desired goal is indicated by the fact that of 596 possible contributors in this region only 58 have definitely been heard from.

In an earnest appeal to the group who are being given the opportunity to express materially their appreciation for a life of service devoted to the common cause, it can not be held out of place to state frankly some facts that do not seem to be currently known.

Robert Ridgway is now in his seventy-seventh year, and after sixty years of continuous and eminently fruitful service to his country he is doomed to retirement on a pension little more than sufficient to provide food for the hosts of birds that have for years fared on the bounty of Larchmound and Bird Haven. With sacrificing fidelity to what he justly considered the best interests of American ornithology, and with undeviating loyalty

to his obligations as a civil servant, Mr. Ridgway has never allowed himself to consider favorably opportunities that have offered him greatly increased financial returns. Museums, universities and other institutions of learning, by the lure of salaries impossible to hope for from Government, have sought in vain to avail themselves of his scholarship. This deliberate sacrifice of his material interests should appeal with particular force to those students everywhere who have profited by it.

There should be small need at this time to recall to the ornithological world its debt to Robert Ridgway. Let the well-thumbed and worn-out copies of Bulletin 50 in every laboratory in the world where North and Middle American birds are handled bespeak this obligation.

If and when the fund is completed and legally protected by the already incorporated Trusteeship, Mr. Ridgway will obviously and logically have the income placed in his hands for the upkeep of the Sanctuary. Failure to complete the fund will necessarily result in the forced sale and subdivision of the property on Mr. Ridgway's retirement. There will thus be lost to ornithological America a rare opportunity to do itself a signal honor, and to the birds a unique and invaluable haven of refuge.

The Cooper Ornithological Club as a publishing society has won for itself an enviable position in the field of zoological science. This has been made possible in large measure by the great hearts of its membership. As a further testimony to our generous impulses, and that we may meet our eastern brethren on the common ground of grateful tribute to our Dean in his ripening years, let us do our small share toward providing the fund asked for. Let us show him while he is yet with us to enjoy and benefit by it that we appreciate and measure the worth of a man by what he has done for others rather than by what he has done for himself.

PUBLICATIONS REVIEWED

KURODA ON BIRDS OF FUJIYAMA[1].—Fujiyama is the most picturesque and romantic mountain in Japan. The present volume treats of the bird-life of that mountain, for much the same reasons, we infer, as certain natural history books do of National Parks in America. The visitor there will find more to enjoy, if he has this sort of a guide at hand. Furthermore, the ornithologist and zoogeographer will have new data regarding bird distribution of that portion of the world.

In the introductory pages, Dr. Kuroda, the well-known Japanese ornithologist, gives an idea of the vertical distribution of birds on Fujiyama. The mountain has an altitude of 3778 meters, and he finds it possible to divide the slopes into four different life zones. The highest zone has about 7 species of birds, the second zone about 25 species, the third zone about 60 species, and the fourth or lowest zone about 20 species. A total of 148 species and subspecies is listed in this book. In addition to that, there are 19 more species of the status of which the author is not yet certain. Referring to zones again, the author mentions that the avifauna is correlated with the local flora; and this recalls significantly what one finds on a similar mountain here, such as Mount Shasta.

Under each species, the writer gives its scientific name, common name, some references to literature, and localities and dates of record. A surprising number of the species have their counterparts in mountainous sections of northwestern America. A number of species are illustrated by photographs, most of these taken from mounted specimens, and not very good. The plates were painted by a Japanese artist, Mr. Kobayashi. The first three plates are beautifully colored, and well reproduced; the last one is a map of the Fujiyama region.

Fujiyama is one of the few protected breeding grounds for birds in Japan; it was made a game reservation in 1924. There are 82 passeriform birds recorded in Kuroda's list, 63 of them being breeders, 17 non-breeders, and 2 of uncertain status. Non-passeriformes are 66 in number; 55 of them are breeders, and the rest are non-breeders.

As early as 1880, Blakiston published a "Catalogue of the Birds of Japan", in which 39 species were reported from Mount Fuji. Since that time, many papers relating to the birds of this locality have been published; but they are widely scattered and not available to the average reader. During the summer of 1925, Dr.

[1] Birds of Fujiyama. By Nagamichi Kuroda. Post 8vo, pp. 2+2+6+238+10, 4 pls., 161 figs. in text. Published by the author, Tokyo, Japan, December 24, 1926. Price 3 yen.

Kûroda made a trip to Fujiyama, to study the bird-life there. Later, in April of 1926, he delivered a lecture on "Birds of Fujiyama" in Tokyo. This led him to write the present book. The text is written in Japanese; western ornithologists can make use of the English index. There is a good bibliography of 48 titles, briefly annotated.

An appendix concludes this volume, in which the vertebrates, other than birds, are treated. There are 41 mammals, 12 reptiles, 9 amphibians, and 14 fishes. Again, the student is struck by similarities to the corresponding faunas on the Pacific coast of America.

Dr. Kuroda's book is an admirable one in many ways. It will form a good foundation for future workers, who will go into life-histories, we hope, as he has not been able to do. People of the land of the cherry-blossom will, we trust, welcome the appearance of Dr. Kuroda's book, which contributes to a naturalist's view of the famous Mount Fuji.—TSEN-HWANG SHAW and J. GRINNELL, *Berkeley, California, March 5, 1927.*

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

FEBRUARY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology, Berkeley, the evening of February 24, 1927, with about fifty members and visitors present. Vice-president Mailliard presided.

January minutes of the Northern Division were read and approved, and January minutes of the Southern Division were read. The following proposals for membership were presented: Seth B. Benson, 2511 Durant Avenue, Berkeley, by J. M. Linsdale; Herbert L. Mason, 2531 Channing Way, Berkeley, by A. E. Borell; George S. Meredith, Farmers and Merchants Savings Bank, Oakland, by F. A. Leach; Amy Rinehart, 540 East Seventh St., Oakland, by M. W. Wythe.

Mr. Carl P. Russell of the Yosemite Park Museum was present and expressed his appreciation of the action of the Club in presenting publications to the Park Museum. Mr. Swarth reported upon plans for the Annual Meeting of the Club and asked members wishing to contribute to the program to communicate with him. Mr. Lastreto exhibited the January issue of the *Standard Oil Bulletin*, containing an article describing the efforts being made by the Standard Oil Company to prevent the pollution of coastal waters by oil. He suggested that the Secretary be instructed to write to their officials expressing appreciation of their action. It was so ordered. Dr. H. C. Bryant reported having this day heard the first Lutescent Warbler of the season. Mrs. Mead announced that Robins are just now present by thousands in the park near the Senator Hotel, Sacramento.

"Birds of the Emeryville Shellmound" was the subject of the evening's program, presented by Miss Edna M. Fisher and Miss Hildegarde Howard. Miss Fisher described the locations and nature of the larger of the four hundred shell mounds found along the northern California coast, and the ideal environs of the Emeryville mound with its strip of sandy beach, fresh water stream, marsh land, and willow thicket. She also told how the artifacts and animal remains were obtained by Miss Howard and herself at the time of the razing of the mound, as well as of the work done upon the location by earlier investigators.

Miss Howard spoke of the immense quantity of bird, mammal and fish bones available for study and also of the difficulty of sorting material where skeletal remains are so completely disarticulated and where material for comparison is often hard to obtain. Among other interesting facts, Miss Howard called attention to the large number of bones of young murres and cormorants found and asked whether young of these two species were ever to be found nearer than the Farallones. Mr. Mailliard replied that he had often seen very young murres in the bay and that cormorants used to nest on Arch Rock, near Alcatraz Island, a rock dynamited some years ago in the interests of navigation. Members present expressed great interest in the work of Miss Fisher and Miss Howard.

An unusual feature of the evening was the exhibition of bird drawings in several media, displayed by Mr. Edmund J. Sawyer of the National Parks Service. Mr. Sawyer's versatility was further proven by his reading of a clever dialect poem, "Ranger Batiste and the Coyote Hunt". Adjourned.—HILDA W. GRINNELL, *Secretary.*

MARCH.—The March meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of

Vertebrate Zoology, Berkeley, the evening of March 24, 1927, with Vice-president Mailliard in the chair and about seventy members and visitors in attendance. February minutes of the Northern Division were read and approved. February minutes of the Southern Division were read.

Miss Margaret W. Wythe reported upon the bird baths which have recently been placed upon the University Campus, giving the location of each bath and enumerating the species of birds attracted. Mr. Bunker commented upon the unusual abundance of Hermit Thrushes during the past winter and told of an individual in his garden which was discovered by Mrs. Bunker to have an additional note to those usually heard, a chest note resembling the rubbing of a file on thin iron. Dr. Bryant announced that certain sportsmen have introduced into the legislature a new bill removing protection from the Black-billed Magpie, Crow and Kingfisher. Mr. Mailliard called attention to the decision to hold the regular April meeting of the Northern Division as a session of the annual meeting instead of on the fourth Thursday of the month.

Mr. J. Grinnell spoke upon "bird populations and conditions that control them". He enumerated the characteristic birds of the Berkeley hills toward Grizzly Peak as he first knew them eighteen years ago, when there were grassy areas dotted with groups of baccharis bushes on shaded slopes and clumps of artemisia on sun-facing slopes. Then there were planted acres of Monterey pines, and as these grew up and flourished the bird-life changed. And finally, now that the area has been devastated by fire and insects, there is a third group of birds which has come to occupy it. What will be the next phase?

To illustrate his point, that species are the playthings of their environments, Mr. Grinnell sketched the environment of the California Clapper Rail and discussed several factors which are steadily operating to change this environment and perhaps bring about the extinction of the species. Such a catastrophe might be delayed indefinitely by the setting aside somewhere in the Bay region of a Salicornia "refuge" or "park", where the rails would be protected from some, at least, of the factors which threaten them. In closing, the speaker suggested that a person wishing to attract any certain species of bird to a garden area could do so by providing the special environment which supports that particular species in nature.

In the discussion which closed the evening many interesting points were brought to light; but no one was able to solve Mrs. Taylor's query as to why House Wrens prefer dust baths to water baths. This query resulted from her own nineteen years of observation in a region where House Wrens are plentiful, and yet they were observed to dip into bird baths only eight times in the nearly two decades.

Adjourned.—HILDA W. GRINNELL, *Secretary.*

SOUTHERN DIVISION

DECEMBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held Tuesday evening, December 28, 1926, at the Los Angeles Museum, Exposition Park. The meeting was called to order by President Bishop with twenty members present. Minutes of the Southern Division for November were read and approved. Minutes of the November meeting of the Northern Division were read.

The following applications for membership were read: Malcolm H. Finley, 270 S. Allen Ave., Pasadena, Calif., by M. W. de Laubenfels; Francis L. Jaques, American Museum of Natural History, New York, by Harry Harris; Frances Lauderbach, 1519 N. Lake Ave., Pasadena, Calif., by Myrtle S. Edwards; Alexander G. Lawrence, City Health Dept., Winnipeg, Canada, by J. A. Munroe; William E. McGee, R. 4, Nampa, Idaho; Edwin A. Meserve, 82 Freemont Place, Los Angeles, Calif.; and W. Dan Quattlebaum, 191 Prospect St., East Orange, N. J., by W. Lee Chambers.

Mr. Chambers called the attention of members to the new publication, "The Birds of Western Canada", by P. A. Taverner, pointing out the value of this work, and announcing the special price to club members. Announcement was also made concerning the Audubon Society lecture on the "Courtship Performances of Birds", by Ralph Hoffmann, to be given at the Los Angeles Public Library, December 30. On the motion of Mr. Wyman the chair was asked to appoint a nominating committee to report at election time next meeting. The motion was seconded by Dr. Rich and carried. Dr. Bishop appointed Mr. Wyman, Dr. Rich, and Mr. Chambers to serve on this committee.

Dr. Bishop presented the paper of the evening in the form of an account of a collecting expedition to the North Dakota lake region. The party spent an entire summer on the prairies along the Cana-

dian border, and encountered many interesting birds which are even now poorly known. Much of this area has been drained or otherwise changed since the time of the expedition in 1895. Baird Sparrows, Chestnut-collared Longspurs and Leconte Sparrows were some of the interesting birds of the sparrow family which, in many cases, are now extinct in this region. Great numbers of ducks once inhabited these prairie areas.

Mr. Hubricht gave an account of observations made upon the Painted Redstart which he discovered in Elysian Park, Los Angeles. Adjourned.—ALDEN H. MILLER, *Secretary.*

JANUARY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held Tuesday evening, January 25, 1927, at the Los Angeles Museum, Exposition Park. The meeting was called to order by the president with sixteen members present. Minutes of the December meeting of the Southern Division were read and approved, and the December minutes of the Northern Division were read. The following new applications for membership were presented: L. V. Compton, 409 W. Webster St., Pittsburg, Kansas, and Henry Tucker, 1818 Pine St., Philadelphia, Penn., by W. Lee Chambers; Malcolm T. Cotter, Box 241, Big Creek, Calif., by E. D. Sismey.

Mr. Wyman, chairman of the nominating committee, reported the following ballot: Mr. Appleton, president; Mr. Chambers, vice-president; and Mr. Michener, secretary. On motion of Dr. Miller, seconded by Mr. Reis, it was voted to accept the report and close the nominations. On motion of Dr. Miller, the secretary cast a unanimous ballot in favor of the nominees. Mr. Appleton then took the chair and asked the past secretary to act in Mr. Michener's absence.

Dr. Miller, on behalf of Mr. Swarth, chairman of the committee on papers, urged contributions to the program for the Annual Meeting, the 28th to the 30th of April, in Berkeley. Mr. Appleton gave an account of catching shearwaters on baited hooks in the Santa Barbara channel. Mr. Hubricht reported Gila Woodpeckers and Townsend Solitaires at Griffith Park, Los Angeles, and an Evening Grosbeak at Sierra Madre. Dr. Miller gave an account of a Prairie Falcon attacking and driving away a Red-tailed Hawk, describing the repeated turning over in the air on the part of the hawk in order to ward off the charging falcon. This incident was observed near Victorville, California.

Adjourned.—ALDEN H. MILLER, *Secretary pro tem.*

FEBRUARY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum, Exposition Park, on February 22, 1927. President Appleton called the meeting to order at 8:00 P. M., with about sixty members and friends present. The minutes of the January meeting of the Southern Division were read and approved.

The following applications were read: Cyril Guy Harrold, 183 Notre Dame Ave., East, Winnipeg, Manitoba, Canada, by H. S. Swarth; Mrs. James R. McDonald, 2035 Lyon St., San Francisco, Calif., and Mrs. Lyman O. Perley, 3420 Lincoln Blvd., Omaha, Nebraska, by Annie M. Alexander; G. Elmer Reynolds, 1148 West Rose St., Stockton, Calif.; Arthur Henry Hardisty, Shelbourne, Vermont; Willard H. Broomhall, Stockport, Ohio; J. P. Jensen, Dassel, Minnesota; Robert Shore, Box 440, Indian Head, Sask., Canada; and Hugh Everett Hart, 511 Prospect St., Medina, New York, by W. Lee Chambers; Frank Forest Gander, P. O. Box 395, East San Diego, Calif., and Robert Bruce Jerrard, Calcite, Colorado, by Harold Michener.

A letter was presented from the secretary of the Pacific Division of the American Association for the Advancement of Science, in regard to the annual meeting of that organization which is to be held at the University of Nevada, Reno, Nevada, June 22 to 24. On the motion of Dr. Rich, seconded by Dr. Miller, the letter was ordered placed on file. Dr. Miller urged that all members of the Southern Division contribute to the success of the second annual meeting of the Cooper Club by filling in promptly the cards addressed to Mr. Swarth, and by co-operating in every other way possible.

Mr. George Willett, who has spent several years in Alaska, was the speaker of the evening. He gave an interesting report of a trip along the Alaskan coast and the Aleutian Islands, telling of the birds he saw. After the report of this trip was concluded the audience asked many questions which led to further discussion by Mr. Willett of the occurrence and habits of various birds in Alaska.

Adjourned.—HAROLD MICHENER, *Secretary.*

For Sale, Exchange and Want Column.—Any Cooper Club member is entitled to one advertising notice in each issue free. Notices of over ten lines will be charged for at the rate of 15 cents per line. For this department, address W. LEE CHAMBERS, *Drawer 123, Eagle Rock, California.*

WANTED—Will pay ten (10) dollars for a copy of Bent's "Diving Birds", U. S. Nat'l. Museum Bulletin no. 107, in good condition.—JOHN B. HURLEY, *710½ East Chestnut St., Yakima, Washington.*

FOR SALE—Traps for bird banders. W. B. B. A. supply. Last word in traps. Folding 4-compartment Potter Trap, $5. Top-opening Warbler Trap, automatic, $5. Trap doors, consisting of door, frame and tripping treadle, 60c each.—WESTERN BIRD BANDING ASSOCIATION, *418 Elm Ave., Pasadena, Calif.*

FRENCH OR GERMAN FIELDGLASSES, $5 up; stereo-prism binoculars, 8-power, $15 up. Mirakel 3 oz. universal focus monoculars with 20-power attachment that converts it into a microscope; 3½-power $10; same in 5-power $12.50. Watch for the new Mirakel 7-power, 7 oz. binocular, $35. Everything in glasses from a Zeiss down. Satisfaction guaranteed after trial, or money refunded.—J. ALDEN LORING, *Box O 182, O-we-go, Tioga Co., N. Y.*

WANTED, FOR CASH—THE AUK, vols. 1-12; vol. 13, no. 3; vol. 14; vol. 15, nos. 1, 2, 4; vol. 16, nos. 2, 3, 4; vol. 17; vol. 26, no. 1; vol. 36. If you have any of these, in original paper covers, perfect, clean and untorn, please state price.—CHARLES F. BATCHELDER, *Peterborough, New Hampshire.*

WANTED, FOR CASH—The Condor, vols. 1 to 7 and vols. 21 to 28; The Auk, vols. 1 to 7 inc.; Bird-Lore, vols. 1, 2, 3, 7, 9, 10, 11.—W. H. BROOMHALL, *Stockport, Ohio.*

BIRD LICE WANTED—I am very desirous of obtaining specimens of Mallophaga (biting bird lice). Please place the specimens in small vials with a solution of about 70% alcohol. I wish to co-operate with fellow collectors and invite correspondence.—HAROLD S. PETERS, *Assistant Entomologist, Virginia Truck Experiment Station, Norfolk, Virginia.*

WANTED, FOR CASH OR EXCHANGE—The Auk, vol. 6, no. 1; The Osprey, vol. 1, nos. 2, 4, vol. v, no. 8; The Nidiologist, vol. 1, nos. 2, 3, 5, 6 and index, vol. 11, index; Proceedings U. S. Nat. Mus., vols. 11, 12, 13; Bird-Lore, vol. I, nos. 3, 4, 5, 6, vol. V, nos. 1, 3, 4, 5, vol. VI, no. 5, vol. VII, nos. 1, 5, vol. IX, no. 3, vol. X, no. 2, vols. XXIV and XXV, each complete.—J. E. HALLINEN, *Cooperton, Okla.*

WILL PAY CASH FOR—Pacific Coast Avifauna, no. 3, published by the Cooper Ornithological Club; Bulletin of the Cooper Ornithological Club, vol. 1, nos. 3 and 4; U. S. Dept. Agr., Bureau of Biological Survey, North American Faunas, nos. 1 to 48, inc., complete set.—RALPH ELLIS, JR., *2420 Ridge Road, Berkeley, Calif.*

BUTTERFLIES—I have over six hundred (600) butterflies collected in southern Oregon, and will dispose of them for best offer.—WM. E. SHERWOOD, *Trail, Oregon.*

BINOCULARS—I have the Mirakel Binoculars for sale and will be glad to show them to anyone interested. 5 power, weight 5 oz., $25.00; 7 power, weight 6 oz., $35.00. —(MISS) HELEN S. PRATT, *2451 Ridge View, Eagle Rock, Calif.*

List of birds, and the number of each, banded in the Western Province during the calendar year of 1926.

Marbled Murrelet	1
American Merganser	1
Mallard	20
Baldpate	89
Green-winged Teal	3
Cinnamon Teal	14
Shoveller	4
Pintail	526
Lesser Scaup Duck	47
White-fronted Goose	1
American Bittern	2
Coot	28
Killdeer	21
Mountain Quail	1
California Quail	34
Valley Quail	55
Gambel Quail	2
Oregon Ruffed Grouse	2
Mourning Dove	20
Western Red-tail	16
Sparrow Hawk	13
Barn Owl	22
Screech Owl (group)	38
Burrowing Owl	1
California Cuckoo	1
Northern Hairy Woodpecker	1
Cabanis Woodpecker	1
Gairdner Woodpecker	3
Alaska Three-toed Woodpecker	4
Red-shafted Flicker	26
Northwestern Flicker	1
Western Kingbird	7
Say Phoebe	1
Western Black Phoebe	29
Olive-sided Flycatcher	8
Western Wood Pewee	2
Western Flycatcher	4
Wright Flycatcher	3
California Horned Lark	2
Steller Jay	17
Blue-fronted Jay	100
Long-crested Jay	46
Black-headed Jay	1
Coast Jay	4
Woodhouse Jay	4
California Jay	50
Rocky Mountain Jay	8
Western Raven	3
Crow	3
Clark Nutcracker	26
Dwarf Cowbird	20
Red-eyed Cowbird	1
Yellow-headed Blackbird	9
Red-winged Blackbird (group)	221
Bi-colored Red-winged Blackbird	3
Tri-colored Red-winged Blackbird	23
Western Meadowlark	5
Arizona Hooded Oriole	27
Bullock Oriole	11
Rusty Blackbird	1
Brewer Blackbird	216
Alaska Pine Grosbeak	3
California Purple Finch	15
Cassin Purple Finch	3
California Linnet	4150
Willow Goldfinch	119
Green-backed Goldfinch	103
Pine Siskin	106
Alaska Longspur	27
Savannah Sparrow (group)	4
Western Lark Sparrow	8
Harris Sparrow	2
White-crowned Sparrow	19
Gambel Sparrow	1833
Nuttall Sparrow	157
Golden-crowned Sparrow	662
White-throated Sparrow	1
Western Tree Sparrow	1
Western Chipping Sparrow	59
White-winged Junco	2
Slate-colored Junco	2
Oregon Junco	238
Sierra Junco	129
Point Pinos Junco	3
Shufeldt Junco	3
Pink-sided Junco	20
Gray-headed Junco	20
Song Sparrow (group)	299
Lincoln Sparrow	27
Fox Sparrow (group)	34
Spotted Towhee (group)	90
Brown Towhee (group)	321
Green-tailed Towhee	10
Black-headed Grosbeak	89
Western Blue Grosbeak	2
Lazuli Bunting	11
Western Tanager	12
Cliff Swallow	196
Barn Swallow	52
Tree Swallow	4
Northern Violet-green Swallow	5
Cedar Waxwing	5
California Shrike	7
Western Warbling Vireo	4
Cassin Vireo	4
Lutescent Warbler (group)	5
Yellow Warbler (group)	11
Audubon Warbler	105
Tolmie Warbler	1
Pacific Yellow-throat	4
Pileolated Warbler (group)	12
American Redstart	1
Pipit	3
Western Mockingbird	100
Palmer Thrasher	4
California Thrasher	35
Cactus Wren	1
Rock Wren	5
Bewick Wren (group)	24
Western House Wren	46
Western Winter Wren	1
Tule Wren	6
Slender-billed Nuthatch	5
Pigmy Nuthatch	4
Plain Titmouse	41
Bridled Titmouse	2
Long-tailed Chickadee	6
Oregon Chickadee	12
Mountain Chickadee	48
Columbian Chickadee	3
Chestnut-backed Chickadee (group)	12
Wren-tit (group)	9
Coast Bush-tit	11
Western Golden-crowned Kinglet	2
Ruby-crowned Kinglet (group)	8
Townsend Solitaire	1
Russet-backed Thrush	19
Olive-backed Thrush	1
Hermit Thrush (group)	49
Eastern Robin	6
Northwestern Robin	17
Western Robin	59
Western Bluebird	38
Mountain Bluebird	12
Japanese Starling	1

Total species and subspecies..... 145

Total individuals 11,445